TRADE SECRETS.

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Trade Secrets.

A

COLLECTION OF PRACTICAL RECEIPTS

FOR THE USE OF

Sculptors, Modellers, Stone Masons, Builders, Marble Masons, Polishers, &c.

TO WHICH IS ADDED

A DESCRIPTION OF THE VARIOUS STONES IN THE UNITED KINGDOM SUITABLE FOR MONUMENTAL PURPOSES, &c.

COMPILED AND EDITED BY

JOSEPH B. ROBINSON,

SCULPTOR, DERBY.

AUTHOR OF THE FOLLOWING WORKS—

"Designs for Monuments," "Gothic Ornament Adapted from Nature,"
"Cemetery and Churchyard Memorials,"
"Epitaphs from the Cemeteries of the United Kingdom,"
"In Memoriam," &c., &c.

DERBY:

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LEARNING will accumulate wonderfully if you add a little every day. Pick up the Book and gain one new idea, if no more. Save that one; add another as soon as you can. When you find or hear a good thing, endeavour to commit it to memory.

QUALITY, not quantity, is an important axiom in these days of rapid production, for by the compression of valuable matter into a small compass, more real information and genuine instruction may be conveyed in a pithy sentence, than if whole pages were elaborately written on the subject.

Preface.

THE wisdom of this age has been to bring Science from her heights down to the practical knowledge of the workman, and the number of inventions and discoveries have kept pace with the increasing wants of man. We give the knowledge which experience has sanctioned, and what improvement has rendered more perfect. Scientific men, in the present day, who choose to be useful as well as celebrated, have studiously noticed facts and formed discoveries which can only be appreciated by those whose wants they supply. The Editor of this Work had amassed for his own private use a number of Practical Receipts, but of late, the rapid diffusion of new discoveries, authenticated by the most respectable names, has been such, that his collection grew every day in bulk and value, and he trusts, by publishing the Work, it will prove as useful to others as it has been to him, feeling convinced that men en-

gaged in active business need all the information they can get to manage their concerns with success. The value of books of this kind does not consist solely in what they state, but in what they may suggest, so that a wide-awake man stands a chance of having an idea suddenly darted into his mind, by which he may materially and essentially improve himself.

In conclusion, we hope the Work will prove useful to those for whom it has been prepared, and that those friends who believe it will do good will take some interest in its circulation.

J. B. R.

1, Stafford Terrace,
Derby, 1862.

Excellence.

THE true way to excel in any work, is to propose the brightest and most perfect example for our imitation. We must improve by the attempt, even though we fall short of the full share of perfection.

The Best Method of Doing Work.

THE law of order requires to be duly combined with the law of work, else we shall walk at hap-hazard, hindering our own usefulness, and irritating the feelings of others. There may be much diligence and zeal without order, but there can be only partial success. To do things in order, appears to be a thing of easy attainment, belonging to the essentially common-place and uninteresting elements of work; hence, it is so frequently neglected, and any admonitions on the subject are generally received with weariness, if not contempt. Those, however, who have known the sadness of failure in their work, without any apparent cause—unless it be a want of due regularity and design—will be convinced that there is a necessity for method, punctuality, earnestness, and patience. *Method*—The very idea of living by rule is frightful to many, especially to those who pique themselves on possesssing something of "genius," which

they consider incompatible with method. Now, if genius has accomplished much in the world without method, doubtless it would have accomplished much more with it; while those who have neither genius nor method will find themselves in but a melancholy plight. When we rise in the morning to the light and work of a new day, unless we have some rules of action; unless we know what we have to do, and when it is to be done; unless we have the hours parcelled out in some measure, so that we need not waste large intervals in arranging and discussing; we run great risk of having our duties ill-balanced—giving undue space to the work that we like, and crushing into a corner the work that we do not like. While we allot, as far as possible, the different duties for the different hours, it is well to leave some but partially filled, to meet the emergencies of unexpected claims, reserving some lighter employment for these "corners of time." *Punctuality* is essential to method, but a distinction is here made between the two, because with some degree of growing method, as regards our own duties, we may yet be heedless regarding the work and the method of others. Time is a gift, and if we choose to undervalue and misapply our own portion, we certainly have no right to appropriate what belongs to those around us. Yet, when we forget to keep an appointment, when we arrive an hour too late for the work to be done in concert with others, we have robbed our neighbours of time that might have been usefully and profitably occupied. In some cases, this is tantamount to the crime of stealing silver and gold, for to many, time is money; to artizans and tradespeople especially, the want of punctuality is a positive injustice; and yet, how little is this social sin guarded against. *Earnestness*—Do not aim at more than you have strength or opportunity for; but what you attempt, do well; it is better to do one duty thoroughly than half a-dozen superficially. There is nothing too small to be done thoroughly, no work so insignificant that we can say, "It is of no consequence how I do it." This thorough spirit will prevent procrasti-

nation—there will be no putting off till to-morrow the duty to be done, or the difficulty to be grappled with, which, with each succeeding day will grow more distasteful and more burdensome; it will also prevent the opposite tendency to undue haste, and the anticipation of future duty, when we ought to be absorbed in the present. *Patience*—If you measure your work by the work of others, you will grow impatient; they seem to do so much more, and to succeed so much better; but Providence has assigned to you one kind of work, and one kind of discipline in that work; to them it has given another, and it belongs not to you to judge which is the more useful, which the more successful. If you are over-anxious that the fruit of your work should look well to the world's eye, you will grow impatient speedily; but remember that the outside may be fair, while the inside is imperfect, and the imposture must one day be detected.

The Secret of Success.

HOW many a struggling tradesman would give his ears to find it out; how many a poor author, seeking for fame in the beaten paths of literature, and living literally, from hand to mouth, would be happy to discover it; how many a speculator dreams of, but never realises it; how many a daring experimentalist woos the goddess Fortune in every shape, and never arrives at the solution of the giant mystery: how many a student makes it in one way or another, the subject of his daily, aye, and nightly thoughts, without once coming within sight of the envied goal which all men strive to reach. The story of unrequited toil—of patient, unremitting labour badly paid—of bold hearts withering beneath the frown of unsuccess—of mighty intellects damped and disappointed—of golden day-dreams and glorious aspirations crushed beneath the iron heel of want—is it not as common as life.

And yet some favoured few have, almost without an effort of their own, discovered the mighty secret. Some, the sons of toil too, have achieved the great purpose. Some, by intuition, as it were, have mastered the riddle that the world—the great moral Œdipus—has given them to solve, and guessed the secret of success.

Some men, said Shakspeare, are born to greatness; some achieve greatness; and some have greatness thrust upon them. There is yet another class who seek for greatness and never find it. Of these are the thousands to whom the secret of success is never vouchsafed, puzzle and seek they never so hard.

And why is this? Why is it that some charlatan, with nothing but a face of brass to recommend him, takes the world by storm, while patient merit is neglected? Can no one answer the question—can no one solve the riddle—no one guess the secret of success? It appears not; and yet the answer is patent to the world.

In the nineteenth century—the age of civilisation and refinement—one man was rewarded princely by public subscription for having made a railway fortune; while another, the author of the railway system, pined in poverty and gloom, and no man thought of him; and yet of these two men, George Hudson and Thomas Grey, whose name will be most honoured by posterity? The first in disgrace, the last in his grave.

Again; in the same building a great genius exhibited the fruits of his mighty mind, and a charlatan abortion was caressed and petted by the rich and fair, who flocked in hundreds daily to kiss his puny cheek. Haydon the painter died by his own hand; and the keeper of the manikin Tom Thumb retired upon a noble fortune.

While Thomas Chatterton pined and withered in a garret in Brownlow Street, and was laid in a pauper's grave in Shoe Lane—garret or church-yard, however, exist no longer—men were making fortunes by the sale of cheap poisons and quack medicines, and thieves and conjurors were living in luxury upon the fruits of their unholy callings.

Not to multiply instances, can we look around without everywhere observing these inequalities of fortune—the many striving in vain, the few rewarded without desert.

But is the grand secret unsolvable, except by accident? surely not. There is a story told of a carpenter who being observed carefully plaining a bench that was intended for the county magistrates, was asked why he took so much pains with the work. He answered that he was making it smooth and pleasant against the time when he should himself take his seat upon it. That was the purpose of his life, and he lived to achieve it. Is there not a great moral in the anecdote?

Columbus, when he had satisfied himself that there must be a western world, was untiring in his application to native and foreign princes for assistance; Ferdinand and Isabella rendered it, and America was the result. Wedgewood was a barber's boy, and shaved for a penny; Dr. Johnson was the son of a poor bookseller in Lichfield, and came to London in search of fame, with a single guinea in his pocket; and yet both have left names that will never die.

And so we might go on. It is vain to say that with some men all things seem to prosper, and that beneath the touch of others, all things seem to wither and to die: the secret of success is not so very difficult to solve as some imagine: it lies in a word, and that word is PERSEVERANCE.

Advice to a Young Tradesman.

BY DR. BENJAMIN FRANKLIN.

Remember that time is money—He that can earn ten shillings a-day by his labour, and goes abroad, or sits idle one half of the day, though he spends but sixpence during his diversion or idleness, ought not to reckon *that* the only expense; he has really spent, or rather thrown away, five shillings besides.

Remember that credit is Money—If a man lets his money lie in my hands after it is due, because he has a good opinion of my credit, he gives me the interest, or so much as I can make of the money during that time. This amounts to a considerable sum where a man has a large credit, and makes good use of it.

Remember that money is of a prolific and multiplying nature—Money can produce money, and its offspring can produce more, and so on. Five shillings turned is six; turned again is seven and threepence; and so on till it becomes a hundred pounds. The more there is of it, the more it produces every turning, so that the profits rise quicker and quicker. He that throws away a crown, destroys all that it might have produced, even scores of pounds.

Remember that six pounds a year is but a groat a-day—For this little sum (which may be daily wasted, either in time or expense, unperceived) a man of credit may, on his own security, have the constant possession and use of a hundred and twenty pounds. So much in stock briskly turned by an industrious man, produces great advantage.

Remember this saying, "*The good Paymaster is lord of another man's purse*"—He that is known to pay punctually and exactly to the time he promises, may, at any time, and on any occasion, raise all the money his friends can spare. This is sometimes of great use. Next to industry and frugality, nothing contributes more to the raising of a man in the world, than punctuality and justice in all his dealings; therefore, never keep borrowed money an hour beyond the time promised, lest a disappointment shut up your friend's purse for ever.

The most trifling actions that affect a man's credit are to be regarded—The sound of the hammer at five in the morning, or nine at night, heard by a creditor, makes him easy six months longer; but if he sees you at a billiard-table, or hears your voice at a tavern, when you should be at work, he sends for his money the next day, and demands it before it is convenient for you to pay him.

Beware of thinking all your own that you possess, and of living accordingly—This is a mistake that many people who have credit fall into. To prevent this, keep an exact account, for some time, both of your expenses and your income. If you take the pains at first to enumerate particulars, it will have this good effect—you will discover how wonderfully small trifling expenses mount up to large sums; and will discern what might have been, and may for the future, be saved, without occasioning any great inconvenience.

In short, the way to wealth, if you desire it, is as plain as the way to market. It depends chiefly on two things—*industry* and *frugality;* that is, waste neither *time* nor *money*, but make the best use of both.

Modelling.

MODELLING in clay. Few tools are necessary for modelling in clay. The clay being placed on a stand or sculptor's easel, the artist begins the work with his hands, and puts the whole into form by the same means. The most expert modellers seldom use any other tools than their fingers, except for the sunk parts of their work and for finishing. If clay could be made to preserve its original moisture, it would undoubtedly be the fittest substance for the models of the sculptor; but when it is placed either in the fire, or left to dry imperceptibly in the air, its solid parts grow more compact, and the work shrinks, or loses a part of its dimensions. This diminution in size would be of no consequence, if it affected the whole work equally, so as to preserve its proportions. But this is not always the case: for the smaller parts of the figure drying sooner than the larger and thus losing more of their dimensions in the same space of time than the latter do; the symmetry and proportions of the work inevitably suffer.

This inconvenience is obviated, by forming the model first in clay, and moulding it in Plaster of Paris before it begins to dry, and then taking a plaster cast from that mould, and repairing it carefully from the original work; by which means you have the exact counterpart of the model in its most perfect state; and you have, besides, your clay at liberty for any other work.

Modelling in wax is at first more difficult than modelling in clay, but practice will render it familiar and easy. The tools used are similar only of a finer sort.

Sculpture on Stone and Marble.

THE tools are chisels, made of good steel, well tempered, and of a strength well proportioned to the hardness of the material to be operated upon. The first thing to be done is to procure a block of stone or marble, of the same size as the model, and also two scale stones of equal size, one for the model and the other for the block of marble, which are placed side by side, and an instrument invented by the late Sir Francis Chantrey, R.A., termed by the profession a "Pointing Instrument," is adjusted to the model, by being placed to a number on the front of the scalestone, and a moveable point being fixed to some part of the model; the instrument is removed to the same number of the scale stone on which is the block of marble, and the sculptor then cuts away the rough surface of the block, until he has obtained the depth as given by the moveable point, this is repeated until the block assumes the form of the model. The work is afterwards brought to its perfect form, by means of chisels of various widths, some round or square as required, till at length by using a rasp he brings his work into a proper state for being polished.

Rasps are of several kinds, some straight, some curved, and some harder or softer than others.

When the sculptor has thus far finished his work, with the best tools he can procure, wherever certain parts or particular works requires polishing, he uses pumice-stone to make all the parts smooth and even. He then goes over them with tripoli, and when he would give a still higher gloss, he rubs them with leather and straw ashes.

Sculpture on Wood.

A SCULPTOR on wood should take care to choose wood of the first quality, and the most proper for the work he intends to execute. If he undertakes a large work, requiring strength and solidity, he ought to choose the hardest wood, and that which keeps best, as oak or chestnut; but for works of moderate size, pear or apple-tree will answer very well. As even these latter woods are still of considerable hardness, if the work consists only of delicate ornaments, the artist will find it preferable to take some more tender wood, provided it is at the same time firm and close; as for instance, the sycamore and lime, as the chisel cuts it more neatly and easily than most other wood. The ancients made statues out of almost every different kind of wood. At Licyon the statue of Apollo was made out of box; the statue of Diana at Ephesus, was of cedar. As these two sorts of wood are extremely hard and undecaying, and as cedar, in particular, is of such a nature, as according to Pliny, to be nearly indestructible, the ancients preferred them for the images of their divinities. In the temple built on Mount Cyllene, in honour of Mercury, Pausanias relates that there was a statue of that God made of citron wood, eight feet in height. This wood was also much esteemed. The cypress likewise, being a wood not apt to spoil, nor to be damaged by worms, was also used for statues; as were the palm-tree, olive and ebony, of which latter, according to Pliny's account, there was another statue of Diana at Ephesus.

Several other kinds of wood were equally employed for this purpose, even the vine, of which the same author says there were statues of Jupiter, Juno, and Diana.

Felibien speaks of a French artist at Florence, of the name of Janni, who executed several statues in wood, in a style of finishing equal to marble, and particularly one of St. Roque, which Vasari considered as a marvellous production.

The beauty of sculpture in wood, consists in the tender manner of cutting the wood, free from all appearance of hardness or dryness.

In the foregoing remarks I have said little respecting the various tools required, but every thing requisite may be had from Mr. G. Buck, Edge-Tool Maker, 245, Tottenham Court Road, London. If wood carving tools are required, be particular to ask for those made by "Addis," as they are the best.

Different Methods of Arranging an Inscription.

IN MEMORY OF

RICHARD RAWLINSON,

WHOSE SOUL ENTERED ON THE ETERNAL WORLD JULY 6, 1856,

AGED 24 YEARS.

In Remembrance of

MARIA MARSHALL,

WHO CEASED TO SOJOURN ON EARTH, MAY 20, 1838,

AGED 16 YEARS.

IN FOND REMEMBRANCE OF

John Turner,

HIS SOUL QUITTED THIS GROSS EARTH, AND ENTERED THE REGIONS

OF IMMORTALITY, DECEMBER 13, 1850,

AGED 2 YEARS.

In Affectionate Remembrance of

HENRY,

THE BELOVED SON OF

WILLIAM AND FRANCES GAMBLE,

WHO DIED JANUARY 14th, 1858,

AGED 27 YEARS.

TO THE

BELOVED MEMORY OF

CHRISTIANA MARY,

YOUNGEST DAUGHTER OF

JOHN AND CATHERINE TEMPEST,

OBIT FEBRUARY 18th, 1860,

ÆTAT 21 YEARS.

HERE

REST IN HOPE OF A JOYFUL RESURRECTION,

THE REMAINS OF

MARY, THE BELOVED WIFE OF

John Ellis,

WHO DIED JANUARY 17th, 1859,

AGED 63 YEARS.

BENEATH THIS STONE
LIE THE REMAINS OF
Henry, Son of
HENRY AND HARRIET MOSELEY,
WHO DIED APRIL 26th, 1855,
AGED 20 YEARS.

IN MOURNFUL REMEMBRANCE OF
JAMES CAMPBELL BELL,
BORN SEPTEMBER 30th, 1848,
DIED MARCH 1st, 1859.

TO THE FONDLY CHERISHED
MEMORY OF
Eliza Harrison,
WHO FELL ASLEEP IN JESUS,
DECEMBER 6th, 1857,
AGED 18 YEARS.

TO THE LOVED MEMORY OF
SARAH MASON,
WHO DEPARTED THIS LIFE
APRIL 3RD, 1859,
AGED 30 YEARS.

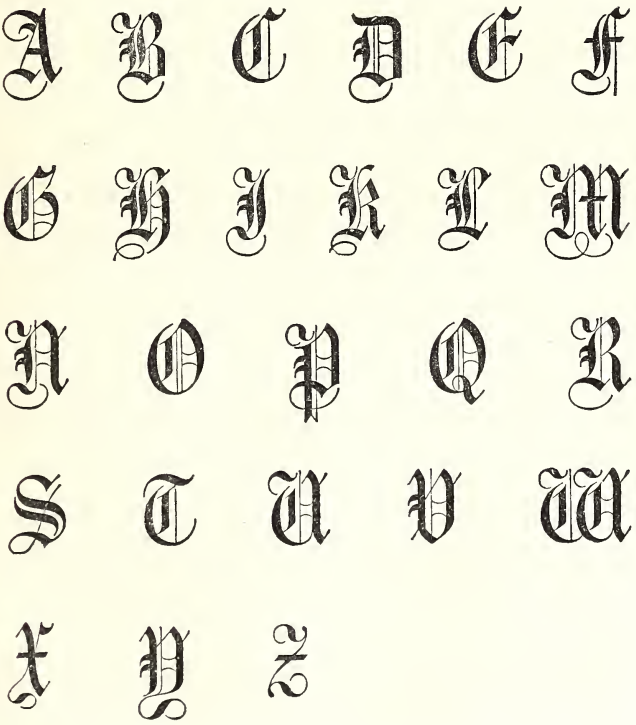
Sacred
TO THE MEMORY OF
SAMUEL PARKER,
HIS SUBLUNARY DESTINY ENDED
SEPTEMBER 16th, 1842,
AGED 58 YEARS.

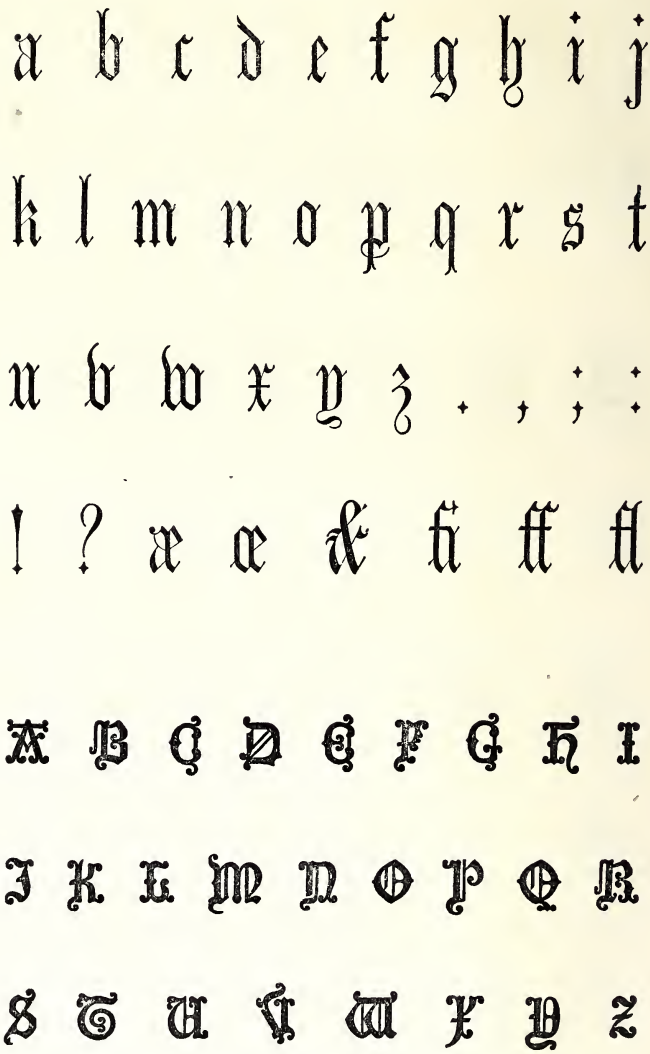
ERECTED
To Perpetuate the Memory of
JOHN RADFORD,
WHO RECEIVED THE AWFUL SUMMONS OF DEATH,
AUGUST 10TH, 1860,
AGED 14 YEARS.

The above style of lettering looks best for general purposes, and also stands the weather better than Roman letters, the fine strokes of which in some kinds of stone are soon obliterated. Do not abbreviate any of the words.

Avoid painting the face of the stone if possible, as after a few years, if the painting is not renewed, the face of the stone will shell off so far as the oil has penetrated. For painting the letters, use ready prepared Brunswick Black, which any painter will procure, the price of which is about 4s. per quart; with this mix a little lamp black finely ground in turpentine, as the Brunswick Black has not sufficient body in it. Paint the letters once with this composition, and afterwards with good carriage varnish, price 4s. per quart; and when sufficiently dry, rub off with fine stone and water any paint that has adhered to the face of the gravestone.

Specimens of Alphabets and Numerals.





a b c d e f g h i j k l m

n o p q r s t u v w x y z

. , ; : ' ! ? & 1 2 3 4

5 6 7 8 9 0

A B C D E F G

H I J K L M N

O P Q R S T U

V W X Y Z Æ Œ

1 2 3 4 5 6 7 8 9 0 . , ; ' : &

A B C D E F G H I

J K L M N O P Q R

S T U V W X Y Z

1 2 3 4 5 6 7 8 9 0 . , ; : &

Monumental Works.

IN ordering stone for Monumental Works it is always best to give the quarryman a little more than the regular price, and ask him to send selected blocks, stating for what purpose they are to be used. I find it a good plan, to have a quantity of slabs sawn and kept for sometime, as they will stand the weather better when fixed than if used fresh from the quarry. There are many stones that answer well for Tombs and Monuments, if placed upon their natural bed the same as they lie in the quarry, that will not answer for an upright headstone, and many of the soft stones will answer for low tombs, as they absorb the damp from the ground to their whole thickness, and the only evil is their tendency to vegetate or moss over.

A DESCRIPTION OF VARIOUS STONES IN THE UNITED KINGDOM SUITABLE FOR MONUMENTAL PURPOSES.

ENGLAND.

Portland Stone from Isle of Portland, average price at quarry 20s. per ton. Messrs. Freeman & Co., Stone Merchants, Millbank, London.

Ketton Stone — A dark cream-coloured stone, price from 1s. 6d. per foot. A good durable stone. Mr. Robert Hibbins, Stone Merchant, Ketton, near Stamford.

Mansfield Woodhouse Magnesian Lime Stone — A yellow brown stone, difficult to get in large blocks. A good weather stone, and stands well for tombs or monuments. Price per foot, from 1s. upwards. Mr. Robert Lindley, Stone Merchant, Mansfield, Notts.

Mansfield Red Stone — A deep red colour, price 8d. per foot. Ditto, white stone, price 1s. per foot. Mr. Robert Lindley, Mansfield ; or Mr. J. Brooke, Debdale, Mansfield.

Bolsover — Similar to the Mansfield Woodhouse stone, the blocks run small. Price per foot, 10d. Mr. John Hoskins, Bolsover, near Chesterfield.

Darley Dale — Sandstone, light brown. Will stand the weather well ; price, delivered at Darley Station. 1s. 4d. per foot. Apply to Darley Dale Stone Company, 44, Chorlton Street, Manchester.

Hopton Wood — Light grey lime stone, much used for gravestones, monuments, &c. Price per foot, from 2s. 6d. upwards. Apply to Hopton Stone Company, Middle Peak, Wirksworth, Derbyshire.

Middleton — Light grey limestone same as above. Blocks of large size may be had of good quality, suitable for monuments, landings, &c. Price from 2s. 6d. to 5s. per foot. Apply to Mr. William Killer, Middleton, near Wirksworth.

Pillough Quarry — Millstone grit, a light brown stone, similar in appearance to Darley Dale stone, but easier to work. This stone is now much used for monuments, tombs, and buildings. Price per foot, 1s. Apply to Mr. S. Deeley, Stone Merchant, Rowsley, near Bakewell, Derbyshire.

Steetley — Magnesian limestone, a light cream colour, stands the weather for monuments, &c. Price per foot, 1s. Apply to Mr. J. Rutherford, Steetley, near Worksop.

Watchill — Same colour as blue York, a good durable stone. Apply to Messrs. W. Ward & Sons, Matlock, Derbyshire.

Wingerworth — A dark brown stone, used for flatstones and ledgers, for tombs or monuments. Price per foot, 1s. Apply to Mr. J. Rutherford, Wingerworth, near Chesterfield.

Penkridge—Sandstone, used for tombs, &c. Apply to Mr. W. Gilbert, Penkridge.

Endon or Kerridge—Sandstone, used for monuments, tombs, gravestones, &c. Very hard and durable. Price per foot, 1s. 3d. Apply to Mr. John Williamson, Endon, near Macclesfield.

Catlow — Light brown sandstone, used for tombs, &c. Price 9d. per foot. Apply to Mr. Thomas Chaffer, Burnley, Lancashire.

Anstone—Light brown stone, used for monumental work, can be supplied in large blocks. Price 1s. per foot. Apply to Mr. George Wright, Anstone, near Kiveton, Yorkshire.

Brincliffe Edge— A blue stone ; good weather stone for monuments, tombs, gravestones, &c. Price per foot 1s. Apply to Mr. Thomas Vickers, Stone Merchant, Brincliffe Edge, near Sheffield.

Heddon Sandstone — Light brown ochre, used for the Grey Monument at Newcastle. Price 6d. to 10d. per foot. Address Mr. William Pearson, Heddon-on-the-Wall, Newcastle-on-Tyne.

Brunton Sandstone — Light grey, used for monumental work. Price from 5d. to 2s. per foot. Address Mr. Robert Robson, East Brunton, Newcastle-on-Tyne.

Ancaster Oolite — Cream colour, used for tombs and buildings, a soft stone similar to Bath. Price 9d. per foot. Apply to Mr. J. Wilson, or Mr. Thompson, Grantham, or to Messrs. Kirk & Parry, Sleaford.

Haydor Oolitic Limestone — Brownish cream, used for tombs, &c. in the neighbourhood. Price 8d. per foot. Address Messrs. Chapman & Haydor, Grantham.

Bolton's Quarry, Aislaby. — Sandstone, warm light brown. Blocks of 100 cube feet have been obtained from this quarry. Price 10d. to 1s. per foot, at the quarry.

Gazeby Sandstone — Grey. Used for monuments, tombs, gravestones, &c. Price 1s. 6d. per foot. Address Messrs. Vint Brothers, Idle, near Leeds.

Knaresborough, Lingerfield Quarry — Sandstone, strong and fine grit, light grey. Price 5½d. per foot. Address Mr. Duffield, Knaresborough.

Park Nook — Magnesian limestone, cream colour. Price 7d. per foot. Address Mr. David Knowls, Park Nook, Doncaster.

Pennant — Sandstone, blue, a first quality stone for monumental work, stands the weather well. Price 1s. 3d. per foot. Apply to Mr. W. S. Lawrence, Stapleton, near Bristol.

Victoria — Sandstone, light brown, used for monumental work. Price 1s. per foot. Address Mr. Joseph Lister & Co., Victoria Quarry, Rodley, Yorkshire.

Bolton's Cray Moor — Sandstone of uniform whiteness. This stone can be easily worked, and does not perish by weather. Price, 9d. per foot. Mr. J. Bolton, Whitby, Yorkshire.

Hollington — Sandstone, White. A good weather stone, extensively used, and can be had in large blocks. Price 8d. per foot. Address Messrs. Walker & Clarke, Hollington, near Uttoxeter, Staffordshire.

Park Quarry, Tixall — Sandstone, light grey, used for tombs and buildings. Price, 8d. per foot.

Seacombe, Isle of Purbeck — Limestone, light brown, used for obelisks, &c. Price 1s. 2½d. per foot.

Bath — Oolite, Coombe Down stone, when properly selected, is an excellent weather stone, the best quality works easily, but the blocks cannot always be obtained free from bars and vents, which constitute the chief defects in the stone. Price, 7½d. per foot. Apply Messrs. Randell & Saunders, Corsham, Wilts.

Serpentine Marble — Used for tombs, vases, fonts, pedestals, &c. Apply to Serpentine Marble Company, Penzance, Cornwall.

Alabaster — Used for interior works, can be had in large blocks. Price 4s. 6d. per foot. Apply to Mr. Thos. Foster, Hanbury, Burton-on-Trent.

Marsh Quarries — Sandstone, grey, used for tombs and gravestones. Apply to Mr. Saml. Hollingsworth, Marsh Quarries, Eckington, Derbyshire.

Handsworth — Blue stone, used for tombs and gravestones, may be had in large blocks. Price, 1s. per foot. Apply to Mr. F. Birtles, or Mr. William Nadin, Handsworth, near Sheffield.

Green Moor — Light brown, used for gravestones and ledgers. Price, per foot 1s. 3d. Apply to Messrs. Brown & Booth, Wortley, near Sheffield.

Huddlestone — Magnesian Limestone, whitish cream colour. Price, 2s. per foot. Apply at the quarries, Huddlestone, near Pontefract.

North Anston — Magnesian limestone, a yellowish brown stone, used for monumental works. Price, 1s. per foot. Apply to Mr. Charles Wright, North Anston, Rotherham.

Park Spring — Fine gritsone, extensively used for monuments, tombs and gravestones. A good weather stone. Price, 1s. per foot. Apply to Messrs. George and Co., Caen Wharf, Rotherhithe, London, who will send it by rail or vessel to any part of the kingdom; or to Mr. William Denton, Stone Merchant, Leeds.

Rawdon Hill — Sandstone of warm colour, used for monumental works. Price, 10d. per foot. Apply to Messrs. Trickett & Perkin, Kirkstall, near Leeds.

Roche Abbey — Cream coloured stone, used for gravestones, &c. Price, 10d. per foot. Apply to Mr. J. Hawke, Maltby, near Rotherham.

Southowram — Millstone grit, used for ledgers and plinths. Good weather stone. Apply to Messrs. Farrar and Son, Southowram, Halifax.

Warwick — Sandstone of warm colour, used for tombs, &c. Price, 8d. per foot. Apply to Messrs. Ibberson, builders, Manchester.

Sandwith. — Red sandstone, used for tombs and gravestones. Price, 6d. per foot. Apply to Mr. John Glaister, Whitehaven.

Walk Mill — Flagstone, used for monuments, tombs, &c. Price, 1s. per foot. Apply to Mr. Samuel Farrar, Whitehaven.

Binks — Grey limestone, used for gravestones, and chimney pieces. Price, 1s. per foot. Apply to F. Pearson, Stone Merchant, Binks Quarry, Windermere.

Brusselton — Freestone, used for gravestones, &c. Price, 1s. per foot. Apply to Messrs. Clementson, Brusselton Quarry, Bishop's Auckland.

Kenton — Freestone, used for ornamental works. Price, from 1s. to 2s. 6d. per foot. Apply to Mr. R. Robson, Kenton Quarries, Newcastle-on-Tyne.

WALES.

Llanellwed — Blue grey stone, used for tombs, &c. Apply at the Quarries, Llanelwedd, near Builth, Brecon.

Ffestiniog — Blue slate used for gravestones, slabs, &c. Apply to Welsh Slate Company, Port Madoc, Merionethshire.

Heullan — Limestone, takes a high polish. Price, 8d. per foot. Apply to Mr. William Foulks, Heullan, Denbigh.

Bangor — Blue slate used for gravestones, tombs, &c. Price 30s. to 60s. per ton. Apply to Royal Slate Company, Bangor, North Wales.

Penrhyn — Blue slate, used for gravestones, tombs, &c. Apply, Penrhyn Quarries, Bangor.

ISLE OF MAN.

Poolvash — Black marble, used for tombs, chimney-pieces, &c. Price, 9d. per cube foot. Apply to Messrs. Quillian & Creer, Poolvash Quarries, Castletown, Isle of Man.

FRANCE.

Caen Stone — Oolite, cream colour, used for interior monumental work. Price, 1s. 3d. per foot. Apply to Messrs. George & Co., Caen Wharf, Rotherhithe, London.

Aubigny Stone — Cream colour, will stand the weather, for tombs, &c. Price 1s. 6d. per foot. Apply to Messrs. George & Co., Caen Wharf, Rotherhithe, London.

IRELAND.

Valencia — Slate, used for flatstones, slabs, &c., price, 4d. to 1s. 6d. per square foot.

Parkmoor — Blue limestone, used for tombs and gravestones, price, 4d. per foot.

Clogrennan — Limestone, pale blue, used for tombs, &c., price, 1s. 6d. per foot. Address H. Rochfort, Esq., Carlow.

Royal Oak — Black marble, used for tombs and chimney-pieces, price, 1s. 6d. to 4s. per foot. Address Mr. P. Brennan, Royal Oak Quarry, Bagnalstown, Carlow.

Angliham — Black marble of superior quality, capable of receiving a high polish, can be supplied in large blocks, price, 5s. 6d. per cube foot. Address T. A. Joyce, Esq., Angliham Marble Quarry, Galway.

Merlin Park — Black marble of the very finest description, and capable of receiving the highest polish, price, 5s. 6d. per cube foot. Address H. Hodgson, Esq., Merlin Park Quarry, Galway.

Glannan — Hard limestone, takes a good polish, used for tombs, &c., price, 1s. 6d. per foot. Address George M'Coy, Glannan Quarries, Glasslough, Monaghan.

Glebe — Hard whitish sandstone, keeps its colour well, can be had in blocks or slabs, any reasonable size, price, from 1s. to 5s. 6d. per foot. Address A. Delany, Glebe Quarry, Glasslough.

Armagh — Carboniferous limestone, price, 3s. per foot. Address J. Gritten, Armagh.

SCOTLAND.

Craignair — Granite. Price, 1s. per foot. Apply to Messrs. Newall, Craignair, Dalbeattie, Kirkcudbright.

Broadwood Gill — Grey sandstone, used for mausoleum Hamilton Palace. Price 1s. per foot. Apply to M. Dickson, Broadwood Gill Quarries, Carluke, Lanark.

Ardeer — Blue freestone, used for monumental purposes. Price 10d. per foot. Apply to James Boyd, Ardeer, Ayrshire.

Craiksland — Blue freestone, used for monuments, &c. Prices from 1s. 3d. to 4s. per foot. Apply to Mr. John Murdock, Civil Engineer, Ayr.

Binny — Sandstone, used in the Edinburgh Cemeteries, stands the weather well. Price from 1s. 5d. per foot and upwards. Apply to Mr. David Lind, Builder, No. 3, Port Hopetoune, Edinburgh.

Lawers — Limestone, used for gravestones, &c. Price 8d. per foot Apply to Mr. Donald Scott, Kenmore, by Aberfeldy, Perthshire.

Brechin — Sandstone of grey colour, takes a high polish, a good weather stone.

Peterhead — Red granite, for polished works in this material. Apply to Messrs. Wright & Son, St. John Street, Aberdeen; or to Mr. W. Robertson, Union Place, Aberdeen.

How to Mend a Plaster Cast.

As an illustration of a right and wrong way of mending, we will suppose a plaster of Paris figure broken; the wrong way to mend it is by a thick paste of plaster, which makes not a joint but a botch. The right way to mend it is, by means of some well-made carpenter's glue, which being absorbed into the porous plaster, leaves merely a film covering the two surfaces, and if well done, the figure is stronger there than elsewhere.

Modelling Wax.

Take a quarter of a pound of virgin wax, a pennyworth of flake white, half a teaspoonful of venice turpentine, and a little spirit of turpentine, and melt them down together.

To Cast Figures in Imitation of Ivory.

Make isinglass and strong brandy into a paste, with powder of egg shells finely ground; you may make it whatever colour you please, but cast warm water into your mould, which should be previously oiled over. Leave the figure in the mould to dry, and on taking it out, you will find that it bears a strong resemblance to ivory.

To take a Plaster of Paris Cast from a Person's Face.

The person must lie on his back, and his hair be tied behind, then put a conical piece of paper, open at each end, to allow of breathing into each nostril. The face is to be lightly oiled over, and the plaster being properly mixed, it is to be poured over the face until it is about half an inch thick. In a few minutes the plaster may be removed, and will form a mould, from which a second cast may be taken, after it is thoroughly dry and been well oiled.

Method of Hardening Objects in Plaster.

Take two parts of stearine, two parts of Venetian soap, one part of pearl-ash, and twenty-four to thirty parts of a solution of caustic potash. The stearine and soap are cut into slices, mixed with the cold ley, and boiled for about half an hour, being constantly stirred. Whenever the mass rises, a little cold ley is added. The pearl-ash, previously moistened with a little rain water, is then added, and the whole boiled for a few minutes. The mass is then stirred until cold, when it is mixed with so much cold ley, that it becomes perfectly liquid, and runs off the spoon without coagulating or contracting. Before using this composition, it should be kept for several days well

covered. It may be preserved for years. Before applying it to the objects, they should be well dusted, the stains scraped away, and then coated, by means of a thick brush with the wash, as long as the plaster of Paris absorbs it, and left to dry. The coating is then dusted with leather or a soft brush. If the surface has not become shining, the operation must be repeated.

To Set Drawings.

Make a weak solution of isinglass, and apply at the back of the drawing, or immerse the drawing in cold skim milk, and let it remain a short time, then take it out and press between two sheets of blotting paper, by means of a heavy weight on the top.

To Take Impressions of Leaves or Plants.

Take half a sheet of fine wove paper, and oil it well with sweet oil, after it has stood a minute or two, to let it soak through, rub off the superfluous oil with a piece of paper, and let it hang in the air to dry; after the oil is pretty well dried in, take a lighted candle and move the paper over it, in a horizontal direction, so as to touch the flame, till it is perfectly black. When you wish to take off impressions of plants, lay your plant carefully on the oiled paper, lay a piece of clean paper over it, and rub it with your finger equally in all parts for half a minute, then take up your plant, and be careful not to disturb the order of the leaves, and place it on the paper on which you wish to have the impression; then cover it with a piece of blotting paper for a short time, and you will have an impression equal to

a fine engraving. The same piece of black paper will serve to take off a great number of impressions. The principal excellence of this method is, that the paper receives the impression of the most minute veins and hairs, so that you obtain the general character of most flowers. The impressions may afterwards be coloured.

To prevent the Corrosion of Iron Cramps

WHEN USED FOR

Fixing Monuments, Etc.

The best means of preventing the corrosion, is first to dip the articles into very dilute nitric acid, and afterwards to immerse them in linseed oil, allowing the superfluity of oil to drain off; they are by this means very effectively preserved from rust or oxidation.

Elastic Moulds.

At the Sheffield School of Design, Mr. Young Mitchell, the master, gave a lecture, illustrated by experiments, on the art of making elastic moulds. It has great advantages over the old plan. The moulds may be made at small cost, and with great rapidity. That which would occupy five or six days in the modelling, may be furnished by this process in half that number of hours. By the facility thus afforded, beautiful forms may be multiplied so cheaply, as to be brought within the reach of all. The principal material used for the elastic moulds is glue or gelatine. The best fish glue will answer as well as gelatine, and is much cheaper. The material is dissolved like

glue, in a vessel placed over the fire in a pot of hot water, stirring it during the process. To each pound of gelatine it is necessary to add three quarters of a pint of water, and half an ounce of bees-wax. It is ready for use when about the thickness of syrup. The model must be oiled carefully with sweet oil, and the composition must be poured upon it while warm, but not boiling. Having set, it may be taken off the model. When the model is small, it should be placed in a shoe or case, which gives facility for shaking the mould well when the plaster is poured, so as to drive it well into the crevices. The plaster should be fine, and in order that it may harden and set quickly, about half an ounce of alum should be added to each pint of water used in mixing it. Before using the mould, it should be carefully oiled. Great care is required in mixing the plaster, and watching it when in the mould, for when it is allowed to remain long enough to heat, the mould is destroyed.

An Easy Method of Darkening Mahogany.

Nothing more is necessary than to wash the mahogany with lime water, which may readily be made by dropping a small piece of lime into a basin of water.

To take Impressions of Medals.

This may be of use to those who wish to preserve good specimens of fine draughts of curious medals, especially as it is easily executed, and with but trifling expense. Take isinglass, and breaking it in pieces, dissolve as much of it as is necessary over the fire in a quantity of water

sufficient only to cover it, taking care to keep it stirring till the whole is dissolved. This done, with a hair brush stroke some of the glue over the medals, the impressions of which you would take; after placing them as horizontally as you can, and when you have covered them perfectly all over, let them lie till the glue is hardened; and afterwards, with the point of a pin or needle, raise the edge of the glue from each medal, and the whole medal in glue will fly off as hard as horn, with all the fine sharpness of the medal as it was struck. This glue may be made of any tint, by mixing the colour in the water the glue is boiled in. The impression must be dried immediately, but very regularly, not in a hot sun, nor in any damp place. If isinglass is used, without any colour mixed with the water, as soon as the impression from the medals are taken, breathe gently on the concave side of them, and then lay them upon the thickest sort of leaf gold, which will adhere to them, and by shining through the isinglass will appear like a gold medal. But to imitate a copper medal, carmine should be mixed with the water in which the isinglass is dissolved. Although water may do very well for dissolving the isinglass in for this purpose, yet brandy or spirit of wine will give the glue a much greater strength, so as not to be subject to soften in damp air.

To give any Close-Grained Wood the Appearance of Mahogany.

The surface of the wood must first be planed smooth, and then rubbed with weak aquafortis, after which it is to be finished with the following varnish:—To three pints of spirit of wine is to be added four ounces and a-half of dragon's blood, and one ounce of soda, which have been

previously ground together; after standing some time, that the dragon's blood may be dissolved, the varnish is to be strained and laid on the wood with a soft brush. This process is to be repeated, and then the wood possesses the perfect appearance of mahogany. When the polish diminishes in brilliancy, it may be speedily restored, by rubbing the article with linseed oil.

American Whitewash.

Take half a bushel of good unslaked lime, slake it with boiling water, covering it during the process to keep in the steam. Strain the liquor through a fine sieve or strainer, and add to it a peck of clean salt, previously dissolved in warm water; three pounds of good rice, ground to a thin paste, and stirred while boiling hot; half a pound of powdered Spanish whiting, and a pound of clean glue, which has been previously dissolved by first soaking it well and then hanging it over a slow fire, in a small kettle within a large one, filled with water. Add five gallons of hot water to the mixture, stir it well, and let it stand a few days covered from dirt. It should be put on quite hot; for this purpose it can be kept in a kettle on a portable furnace. It is said that about one pint of this mixture will cover a square yard upon the outside of a house if properly applied. It retains its brilliancy for many years. There is nothing of the kind that will compare with it either for inside or outside walls. Any required tinge can be given to the preparation by the addition of colouring matter.

STONES

Reported on to the Commissioners of Woods and Forests, for the Building of the New Houses of Parliament.

* Abbreviations—s. Sandstone. l. Limestone. m. l. Magnesian Limestone. o. Oolitic Stone.

† Weight per cubic foot in ordinary state.

England and Wales.

County.	Locality.	*	†lbs.	oz.	Colour.	Components.
Bedfordshire.	Tottenhoe, near Dunstable.	l.	116	8	Greenish white.	Calcareous and argillaceous matter in about equal proportions; structure fine.
Derbyshire.	Duffield Bank, Duffield.	s.	132	14	Light brown, with dark brown and purplish spots.	Quartz grains of moderate size, and decomposed felspar, with an argillaceous silicious cement, ferruginous spots, and occasionally plates of mica.
Ditto.	Duke's Quarries, Whatstandwell Bridge.	s.	144	8	Red, varied with green, brown, and grey.	Quartz grains, generally coarse, with decomposed felspar and an argillo-silicious cement; ferruginous spots.
Ditto.	Stancliff, or Darley Dale, near Bakewell.	s.	148	3	Light ferruginous brown.	Quartz grains of moderate size, and decomposed felspar with an argillo-silicious cement, ferruginous spots and plates of mica.
Ditto.	Hopton Wood, near Wirksworth.	l.	158	7	Warm light grey.	Compact carbonate of lime, with encrinal fragments abundant.

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
Derbyshire.	Bolsover, near Chesterfield.	M. L.	151	11	Light yellowish brown.	Chiefly carbonate of lime and carbonate of magnesia, semi-crystalline dolomite.
Ditto.	Ball Cross, or Bell Crop, Bakewell Edge.	S.			Ferruginous brown-striped and zoned in deeper tints.	Silicious grains, with argillo-silicious cement, occasionally micaceous; ferruginous.
Devonshire.	Beer, near Axminster.	L.	131	12	Light tint of brown.	Chiefly carbonate of lime, friable, and with partial indurations.
Dorsetshire.	Seacombe, near Corfe Castle.	L.	151		Light brown.	Semi-compact carbonate of lime, with fragments of shells.
Durham.	Pensher, near Houghton-le-Spring.	S.	134	5	Pale whitish brown.	Coarse quartz grains, with an argillo-silicious cement; plates of mica.
Ditto.	Stenton, near Barnard Castle.	S.	142	8	Ferruginous light brown.	Fine quartz grains and decomposed felspar, with an argillo-silicious cement, ferruginous specks and some plates of mica.
Glamorganshire.	Sutton, near Bridgend.	L.	136		Very light cream.	Compact carbonate of lime, highly crystalline.
Gloucestershire.	Windrush, near Burford.	O.			Cream.	Fine oolitic grains, with calcareous cement, and a few fragments of shells.
	hard.		135	15		
	soft.		118	2		
Kent.	Calverley, Tunbridge Wells.	S.	113	1	Variegated brown.	Fine silicious grains, with a slightly calcareous cement.
Lincolnshire.	Ancaster, near Sleaford.	O.	139	4	Cream.	Fine oolitic grains, cemented by compact and often crystalline carbonate of lime.
Ditto.	Haydor.	O.	133	7	Brownish cream.	Carbonate of lime, with oolitic grains often crystalline.
Monmouthshire.	Abercarne & Newbridge, near Newport.	S.	167	15	Dark bluish grey.	Quartz and silicious grains, moderately fine, with argillo-silicious

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
						cement; micaceous; and with remains of fossil plants.
Monmouthshire.	Barbadoes, Tintern.	s.	146	12	Light greyish brown.	Fine and coarse quartz and other silicious grains, with argillo-silicious cement, ferruginous spots and plates of mica.
Northamptonshire.	Barnack Mill, near Stamford.	o.	136	12	Light whitish brown.	Carbonate of lime, compact and oolitic, with shells, often in fragments, coarsely laminated in planes of beds.
Northumberland.	Hedden, near Newcastle.	s.	130	11	Light brown ochre.	Coarse quartz grains & decomposed felspar, with an argillo-silicious cement; ferruginous spots.
Oxfordshire.	Taynton, or Teynton, near Burford.	o.	135	15	Streaky brown.	Carbonate of lime, partly oolitic and friable, with very small fragments of shells; irregularly laminated.
Portland, Isle of.	Trade Quarry.	o.			Whitish brown.	Oolitic carbonate of lime, with a few fragments of shells.
Ditto.	King's Barrow, East End Quarry, adjoining Waycroft.	o.			Ditto.	Ditto.
Ditto.	Fern Street Quarry, top bed.	o.	134	10	Ditto.	Ditto.
Ditto.	Castles Quarry.	o.			Ditto.	Ditto.
Ditto.	Waycroft Quarries, top bed.	o.	135	8	Ditto.	Oolitic carbonate of lime, with disseminated fragments.
Ditto.	Maggott Quarry.	o.			Ditto.	Oolitic carbonate of lime, with fragments of shells.
Ditto.	Goslings Quarry, Roach.	o.	126	13	Whitish brown.	Oolitic carbonate of lime, with fragments of shells.

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
Portland, Isle of.	Grove Quarry, Bowers, best bed.	O.	147	10	Whitish brown.	Oolitic carbonate of lime, with numerous fragments of shells.
Ditto.	Grove Quarry, Redcroft.	O.	145	9	Ditto.	Oolitic carbonate of lime, with a few fragments of shells.
Rutland.	Ketton, near Stamford.	O.	123	5	Dark cream colour.	Oolitic grains of moderate size, slightly cemented by carbonate of lime.
Somersetshire.	Bath (Lodge Hill), Combe Down, near Bath.	O.	116		Cream.	Chiefly carbonate of lime, in oolitic grains.
Ditto.	Bath (Drewe's Quarry), Monkton Farleigh, near Bath.	O.	122	10	Ditto.	Chiefly carbonate of lime, in oclitic grains of moderate size.
Staffordshire.	Hollington.	S.	133	1	Light brownish grey.	Quartz grains of moderate size, with an argillo-silicious cement, plates of mica.
Surrey.	Gatton, Gatton.	S.	103	1	Greenish light brown.	Fine silicious grains, with a calcareo-silicious cement, containing green silicate of iron and plates of mica.
Wiltshire.	Chilmark, near Salisbury.	L.	157	7	Light greenish brown.	Carbonate of lime, with a moderate proportion of silica and occasional grains of silicate of iron.
Ditto.	Bath, Baynton Quarry, Box, near Chippenham.	O.	123		Cream.	Chiefly carbonate of lime, in moderately fine oolitic grains, with fragments of shells (weather bed).
Ditto.	Cranmore, near Dolting.	O.	134	4	Light brown.	Carbonate of lime with a few oolitic grains, and an abundance of small shells commonly in fragments, often crystalline.

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
Yorkshire.	Bolton's Quarry, Aislaby.	s.	126	11	Warm light brown.	Moderately fine silicious grains, with argillo-silicious cement, plates of mica, and spots of carbon disseminated.
Ditto.	Bramley-fall, near Leeds.	s.	142	3	Light ferruginous brown.	Quartz grains (often coarse) and decomposed felspar, with argillo-silicious cement. Mica rare. Small ferruginous spots disseminated.
Ditto.	Elland Edge, near Halifax.	s.	135	4	Light grey brown.	Fine quartz grains, with an argillo-silicious cement; micaceous in planes of beds.
Ditto.	Park Spring, near Leeds.	s.	151	1	Light ferruginous brown.	Fine quartz grains and decomposed felspar, with an argillo-silicious cement; mica chiefly in planes of beds.
Ditto.	Gatherley Moor, near Richmond.	s.	135	13	Cream.	Quartz grains of moderate size, and an argillo-siliceous cement, ferruginous spots and plates of mica.
Ditto.	Scotgate Head, Huddersfield.	s.	158		Light greenish grey.	Quartz grains of moderate size, with an argillo-silicious cement, mica in planes of beds, and occasional specks of carbon.
Ditto.	Whitby Co.'s Quarry, Aislaby, near Whitby.	s.	126	11	Light brown.	Silicious grains of moderate size, with an argillo-silicious cement, some plates of mica and spots of carbon disseminated.
Ditto.	Ditto, Eglon Quarries, viz. Arncliffe, Julian Park, Priddams, and Lease Rigge, near Whitby.				Pale to dark brown.	

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
Yorkshire.	Ditto, Sneaton, near Whitby.	S.				
Ditto.	Ditto, Newton Dale, near Whitby.	S.				
Ditto.	Brodsworth, near Doncaster.	M. L.	133	10	Light brown tint.	Chiefly carbonate of lime and carbonate of magnesia, with sub-oolitic grains ; friable.
Ditto.	Cadeby, near Doncaster.	M. L.	126	9	Cream.	Chiefly carbonate of lime and carbonate of magnesia, with sub-oolitic grains and irregularly formed oolitic grains ; friable.
Ditto.	Huddleston, near Sherburn.	M. L.	137	13	Whitish cream.	Chiefly carbonate of lime and carbonate of magnesia ; semi-crystalline. Dolomite.
Ditto.	Jackdaw Crag, near Doncaster.	M. L.			Dark cream.	Chiefly carbonate of lime and carbonate of magnesia.
Ditto.	Roche Abbey, near Bawtry.	M. L.	139	2	Whitish cream.	Chiefly carbonate of lime and carbonate of magnesia, with occasional dendritic spots of iron or manganese ; semi-crystalline. Dolomite.
Ditto.	Smawse, near Tadcaster.	M. L.	127	8	Light yellowish brown.	Chiefly carbonate of lime and carbonate of magnesia ; slightly crystalline.
Ditto.	Wass, near Thirsk, hard.	O.	162	8	Brown.	Compact carbonate of lime, with oolitic grains and an argillo-calcareous cement ; carbon disseminated.
	soft.		141	11		

COUNTY.	LOCALITY.	*	lbs.	oz.	COLOUR.	COMPONENTS.
Edinburghshire.	Craigleith, Craigleith Hill, near Edinburgh.	S.	145	14	Whitish grey.	Fine quartz grains, with a silicious cement; slightly calcareous; occasional plates of mica.
Forfarshire.	Glammis.	S.	161	2	Purple grey.	Silicious grains of moderate size; cement slightly calcareous, mica abundant in planes of beds.
Ditto.	Pyotdykes, near Dundee.	S.	162	8	Purplish grey.	Siliceous grains of moderate size, with a calcareo-argillo-siliceous cement; micaceous.
Linlithgowshire.	Binnie and Uphall.	S.	140	1	Brownish grey.	Fine quartz grains, with argillo-silicious cement; micaceous, chiefly in planes of beds.
Ditto.	Crawbank, Borrowstowness.	S.	129	2	Light ferruginous brown.	Fine quartzose grains, with an argillo-silicious cement, somewhat ferruginous; disseminated mica.
Ditto.	Humbie, Humbie, white. grey.	S.	140 135	3 13	Pale grey and light brown.	Fine quartz grains, with silicious cement; slightly calcareous, mica chiefly in planes of beds.
Perthshire.	Longannet, near Kincardine.	S.	131	11	Light ferruginous brown.	Fine quartz grains, with silicious cement, containing oxide of iron; a few plates of mica.
Ditto.	Mylnefield, or Ringoodie, near Dundee.	S.	160		Purplish grey.	Fine silicious grains, with silicious cement, containing oxyde of iron; a few plates of mica.
Rosshire.	Munlochy.	S.	160	9	Red and variegated.	Fine silicious grains, with an argillo-silicious cement; micaceous.

Test of Frost-resisting Power of Stone.

The following ingenious and practicable method of determining how far a stone will resist the action of frost, was contrived by M. Brard, who communicated it to the Royal Academy of Science at Paris. The destructive operation of frost upon building materials is so well known, that little need be said in introducing the subject. When water freezes, it augments one-ninth in volume; and when it does so in the cellules of solid bodies, it exerts a disintegrating power, which in due time destroys their cohesion altogether. All stones are more or less absorbent, though the humidity of some rocks is so slight, that in reference to their power of withstanding frost, they are entitled to be distinguished as the *resistant*, in opposition to the less dense or *non-resistant* class. It suggested itself to M. Brard, after various experiments with water, and with chemical freezing mixtures, that the striking analogy between the crystallizing and expansive force of salts and congealed water, rendered the former available as media for ascertaining the amount of the resistant property possessed by stones and other bodies; and accordingly pursuing his researches, with solutions of nitre, alum, sulphate of iron, common salt, Epsom salts, and Glaubers' salts, he found that the last (sulphate of soda) was the most energetic and active, and the best exponent of the action of freezing water. The importance of the subject obtained for it consideration at the hands of the learned body before whom he laid his views; and a commission of inquiry was appointed, whose report was followed by the publication of the following directions:—

1. Choose from the quarry specimens of those parts, which, from certain observed differences of colour, grain, and general appearance of the stone, are of a doubtful quality.

2. Form the specimens into two inch cubes carefully, with sharp edges.

3. Mark on each specimen a number with Indian ink, or by scratching with a steel point, and make memoranda on paper corresponding therewith, so that the identity of each specimen with the spot whence it was obtained may be preserved, and notes added of such phenomena as may present themselves during the investigation.

4. In making the solution, use rain or distilled water, and continue to add the sulphate of soda until no more will dissolve; its perfect saturation will be ascertained, by finding, after repeated stirring, a little of the salt remain at the bottom of the vessel undissolved, an hour or two after it has been put in.

5. Heat the solution in any vessel usually put on a fire (perhaps an earthen pipkin may be most convenient), and when the solution boils, put in the specimens one by one, so that all may be completely immersed.

6. Be careful to continue the boiling for half an hour.

7. Take out the specimens one at a time, and suspend them by threads, so as not to touch over vessels containing a portion of the liquid in which they were boiled, but strained first to insure the absence of any sand or dirt.

8. In the course of twenty-four hours, if the weather be not very damp or cold, the surfaces of the cubes will become covered with little white saline needles or crystals; to wash off these, plunge each stone into the vessel below it, and repeat this two or three times a day.

9. If the specimen be of the *resistant* kind, nothing will be abstracted by the crystals; if of the *non-resistant*, the salt will chip off in little particles, which will be found in the vessel beneath; its quality will thus be

discovered as soon as the salt appears on the surface, and its sharp arrises and corners will soon disappear. By about the fifth day, the experiment may be considered at an end. When the salt has appeared on the surface, the deposit is assisted by dipping the stone five or six times a day in the solution.

10. In order to ascertain the relative resisting powers of the specimens, it is only necessary to compare the weight of fragments detached from each, as found deposited in the respective vessels, when the greatest weight will denote the specimen least adapted to building purposes.

List of Patents for Preserving Stone.

Date.	Patentee.	Analysis of Process.
1838.	BETHEL.	Treating with Coal Tar, Oil, Caoutchouc, or Resin, &c.
1841.	NEWTON.	Treating with Silicate of Soda or Potash.
1846.	TEYCHENNE.	Treating with Coal Tar, Bituminous Matter, Tallow, or other Fatty Substances, Linseed, or other Drying Oils, Resins, and Gums.
1847.	HUTCHISON.	After being dried in a chamber, the Stone or other substance is immersed in a boiling Solution of Resin admixed with Oils, Tallow, or other Gummy or Fatty Matter; or Pitch admixed with Oils, Tallow, or other Gummy or Fatty Matter; or Coal Tar, with or without Pitch or other Bituminous Substances; or Glue, Gums, and other Cohesive and Hard Substances, boiled into a Solution with Oil, &c.
1848.	BETHEL.	Immersing in Hot Tar, Bitumen, or Resin, with Bituminous or Tarry Oil.
1852.	MOREAU.	Treating with Silicate of Potash.
1853.	BARRETT.	Treating with Sulphur dissolved in Vinegar or Acetic Acid, or Shell Lac, Seed Lac, Common Turpentine, and Pyroligneous Spirits; or Gutta Percha dissolved in Coal Tar Naptha; or Limestone, Water, Alum, Beer Grounds, Gall, &c.
1854.	DAINES.	Treating first with a Solution of Alum or Sulphate of Zinc, and then with Sulphur dissolved in Oil.
1854.	ASSANTI.	Treating with Gutta Percha dissolved in Sulphuret of Carbon.
1855.	BELLFORD.	Treating with Silicate of Potash or Soda.
1855.	GILBEE.	Treating with Silicate of Potash applied by means of suitable Pumps.
1855.	PAGE.	Treating with Calcined Bees' Wax, dissolved in Coal Tar Naptha.

Date.	Patentee.	Analysis of Process.
1856.	RANSOME.	Treating with a Solution of Silicate of Potash or Soda, and afterwards with a Solution of Chloride of Calcium, producing Silicate of Lime, in the pores of the Stone; or Solutions of Alumina and Baryta; or any two Solutions, which, by mutual decomposition, produce by deposition an insoluble mineral precipitate in the pores, or on the surface of the Stone, &c.
1856.	CLARK.	Treating with Gelatine, Isinglass, Fish Glue, &c., and afterwards with a Solution of Tannin or Nutgall, Sumac, or Oak Bark, &c., or Silicate of Potash or Soda.
1856.	BROOMAN.	Coating first with a mixture of Flour, Water, and Carbonate of Lime, then with a mixture of Silicate of Potash, Phosphate of Soda, Sulphuret of Baryta, Zinc-White, and Borate of Manganese.
1857.	SZERELMEY.	Coating with a mixture of Water, Blood, Ground Bricks, powdered Copper Slag, powdered Iron Slag, Argillaceous Earth, and Gaseous Matter, produced from Milk, boiled together, and afterwards with a mixture of Gas or Coal Tar, or Linseed Oil, or Rosin, or Asphalte, with Hydraulic Lime, Grit, and Calcined Flint, boiled together.
1857.	PAUL.	Treating with Aluminates of Potash, Soda, or any other Aluminates, or Zincates of Potash or Soda, or Phosphates of Alumina, or Zinc in Solution by Alkalies; also similar preparations of Lead or Molybdenum.

Preservation of Stone.

From Mr. Scott's report on the experiments made on the rapidly decaying stone in Westminster Abbey, it appears the following results have been obtained —

1. Water Glass tried in 1857 and 1858. Stone hardened, but decay only partially arrested.
2. Paul's Aluminate of Potash tried same date, same result as No. 1.
3. Ransome's Silicate of Lime process ; same result.
4. Szerelmy's secret process. Stone much hardened, decay only slightly visible. Mr. Faraday thinks this method to be the best.
5. Soap and alum process: effects appear to have ceased.
6. Rocha's Silicate : effects remain, but efficiency not reported upon.
7. Shellac in Spirits of Wine : admirably successful where protected from rain. Scarcely so successful where exposed to rain.
8. White Wax in Turpentine. Failure.
9. Same as No. 8, with addition of Stearine better but failing.
10. Daine's Oil and Sulphur process. Tried since July, 1859. Almost entirely successful.

The above results are most encouraging. When in a matter of such import, 30 per cent. of the methods tried are almost complete successes, every hope may be entertained that soon some processes may be discovered quite equal to the demands made upon them.

Artificial Marble.

A quantity of plaster of Paris is soaked in a solution of alum, baked in an oven, and ground to a powder; it is then used as wanted, by being mixed with water similar to plaster: it sets into an exceedingly hard composition, and takes a high polish. It may be mixed with various coloured minerals or ochres, to represent the various marbles, and is a valuable recipe.

Admirable Cement or Mortar,

AS MADE ON THE

Cotswold Hills.

On the Cotswold Hills, in Gloucestershire, where lime is dear, and sand not to be had, an excellent mortar is prepared at a moderate price. Invention is seldom more successful than when it is prompted by necessity. The scrapings of the public roads over these hills being levigated limestone, more or less impregnated with the dung and urine of animals travelling on them, are found to be a most admirable basis for cement. The scrapings alone are frequently used for ordinary walls; and the general

proportion, for even the best buildings, is not more than one part lime to three of scrapings. This mortar, of less than ten years' standing, has been observed to possess a stone-like tenacity, much firmer than the common stone of the country; and consequently, much harder than the stones from which either the basis or the lime was made. Similar scrapings may be collected wherever limestone is used as a material for making or repairing roads, and the mortar readily prepared, in all such places, with very little trouble and expense.

New Method of Decorating Walls.

In India, the plastered walls of rooms are stamped when moist, and worked into patterns, over which is spread a varnish of powdered talc, which closely resembles the richness and hue of new and unused frosted silver plate. This might be introduced in England as a very cheap and elegant drawing-room decoration.

To Prevent Dampness in Walls.

To prevent damp exuding from the walls of apartments, first dry them thoroughly, and then varnish them with the following, to be procured at any oil-shop—Mix with one pint of linseed-oil about an ounce and a half of ground litharge, and two ounces of finely-powdered resin. Apply this in successive coats, which, after the fifth time, will form a varnish on the wall so hard and compact as to exclude moisture.

Damp Walls.

When damp walls proceed from deliquescence, in the case of muriate of soda, &c., in intimate combination with the sand used for the mortar, it is merely necessary to wash the wall with a strong solution of alum. This converts the deliquescent salt into an efflorescent one, and the cure is complete; or alum may be added to the plaster in the first instance.

To Examine a Deep Tank or Well.

It is scarcely possible to see the bottom of a well by looking down in the common manner, but it is perfectly practical to do so with a reflector. When the sun is shining brightly, hold a mirror so that the reflected rays of light will fall into the water. A bright spot will be seen at the bottom so light as to show the smallest object very plainly. In the same way one can examine the bottom of ponds and rivers, if the water be somewhat clear, and not agitated by winds or rapid motion. If a well or cistern be under cover, or shaded by buildings, so that the sunlight will not fall near the opening, it is only necessary to employ two mirrors, using one to reflect the light to the opening, and another to send it down perpendicularly into the water. Light may be thrown fifty or a hundred yards to the precise spot desired by one mirror,

and then reflected downwards by another. There is another and very simple manner of peering down into the depths of the sea, which is practised by collectors of deep sea specimens for the marine vivary. They put four small planks together, about two feet long and six inches wide, and fix at the bottom a square of glass. This case is of sufficient length to enable them to see below the surface agitation of the waves, when the sea is calm, by immersing it by the side of a rock, the water below that point being perfectly transparent down to the sand or shingle.

To Clean Oil Paintings.

Clean the picture well with a sponge dipped in warm beer; after it has become perfectly dry, wash it with a solution of the finest gum-dragon dissolved in pure water. Never use blue starch, which tarnishes and eats out the colouring; nor white of eggs, which casts a thick varnish over pictures, and only mends bad ones by concealing the faults of the colouring.

To Prepare a Beautiful Green Colour Without Arsenic.

48 lbs. of sulphate of copper, and 2 lbs. of bichromate of potash, are dissolved in the requisite quantity of water, and 2 lbs. of carbonate of potash (pearlash) and 1 lb. of chalk added to the clear solution. The precipitate is pressed, dried, and rubbed to a powder. This colour is

particularly well adapted for painting dwelling-rooms and workshops, there being no fear of any poisoning from arsenic. By varying the proportions, a number of different tints of colour may be obtained.

Pyronome.

A NEW PRODUCT TO SUPERSEDE THE USE OF GUNPOWDER FOR BLASTING IN QUARRIES.

The loss of life from the careless use of gunpowder in mining is so great, that we are glad to learn of a new product, less liable to explosion from careless treatment, and much cheaper than gunpowder for blasting rocks, &c., and which, after having been exposed to damp or wet, does not lose its explosive power, but becomes serviceable again after being dried. This substance has been invented by a Mr. Renaud, who has named it Pyronome. As compared with gunpowder, it is much lighter and produces the same effect. Its cost price is considerably less than gunpowder, but it cannot be advantageously used for fire-arms. It is composed of nitrate of soda, 52.5 parts; residue of tan (after it has been used for tanning), 27.5 parts; powdered sulphur, 20.0 parts. The operations for its preparation are as follows—1. Dissolve the nitrate of soda in a sufficient quantity of water. 2. Mix the tan in this solution in such a manner that all parts may become impregnated. 3. Mix the powdered sulphur in the same manner. 4. Take the product from the fire and dry it. When completely dry it may be placed in sacks or barrels for use. This product is much superior to gunpowder for the uses above-named, in every respect, and will, we doubt not, be received as a boon by both miners and quarrymen, and will come into general use. Arranged in cartridges, no possible accident could happen; and,

besides being 15 per cent. cheaper than gunpowder, it possesses the rare quality of retaining its explosive properties after being subjected to damp or wet—merely requiring drying—and its preparation is so exceedingly easy as to bring it within the means of every one to manufacture for himself.

Hardened Wood.

The process of hardening wood by impregnating it with sulphate of iron, is stated to have been adopted with great success in the case of the American railroads and plank roads. Wood thus treated, has been rendered so hard, that after being travelled over for a twelvemonth, it has not exhibited the smallest traces of the wheels.

To Preserve Woodwork.

Boiled oil and finely-powdered charcoal; mix to the consistence of a paint, and give the wood two or or three coats with this composition. It is well adapted for water-spouts, casks, &c.

Mode of Application of Wax

AS A

Preservative of Stone, Marble, &c.

Procure a square sheet-iron case, the sides being penetrated with holes to admit a current of air; the bottom of the case to be formed of iron bands, similar to those used in

fireplaces. At each corner of the upper part of the case there should be blocks also of iron, with a chain of iron to pass over an iron ledger which is placed between two tressels near the work. When this apparatus is suspended, light a fire in the case, using, in the first instance, wood and coals to light it—then feed the fire with coals till it burns brightly. You may then place it at a proper distance from the marble or stone which is to be impregnated with wax, say three inches distant from the sculptured work, and in a few minutes it will heat the stone sufficiently to enable you to apply the wax, which should be done with a hog-bristle brush; the wax being previously melted in a pipkin. Care should be taken to keep the work free from dust.

To Soften and Remove Putty.

Spread a little nitric or muriatic acid over the putty, and in a short time it will become soft, when it may be easily removed.

To Lower a Stone without Injury.

In setting a stone of large dimensions without a lewis, a difficulty is often experienced to lower it without chipping the edges; to avoid this, take some pieces of lump sugar and place it at the corners, which will bear the weight of the stone until it is in its proper place for lowering down, when by applying a little water, the sugar will melt and let the stone down gradually without injury.

Recipe for Making Tracing Paper.

The Editor of the *Mechanics' Magazine* gives the following recipe for producing a tracing paper, "that leaves nothing to be desired." Mix six parts by weight of spirits of turpentine, one of resin, and one of boiled nut oil, and lay on with a brush or sponge.

To Remove Grease Spots from Drawings.

If a little magnesia (it will be well to try both the calcined and the carbonate), is powdered over the grease spot, with a piece of clean blotting paper laid again on that, and a common laundry iron moderately passed a few times over it, the grease is often readily removed. If it does not come out at once, or if there is a very large spot, it will be well to shake off the magnesia which cakes with the heat, sprinkle a fresh quantity over it, and pursue the same plan.

Waterproof Glue.

A Company has just been established for manufacturing a kind of marine glue, invented by Mr. W. J. Hay, of Portsmouth Dockyard, and patented by permission of the Admiralty. The composition is cheaper than marine glue.

In addition to the purposes to which marine glue is applicable, the waterproof glue, from its extremely low price, may be used for covering iron, wood, and all other descriptions of roofing and fencing, and for posts, piles, &c. The glue, it is added, has been tested by seven years' trial. Its principal ingredient is Trinidad pitch or asphalte, which is mixed with vegetable tar, and oil naptha, or a suitable substitute. The best proportions for the ingredients which Mr. Hay has yet discovered, are Trinidad pitch or asphalte, 60lbs.; vegetable tar, 15lbs.; oil naptha, 2lbs.

Swedish Method for Preserving from Rust, Iron Work exposed to Air.

They take such a quantity of pitch and tar as they think they have occasion for, and mix up with it such a quantity of the best sort of soot as not to make it too thick for use; with this composition they paint all parts of the iron-work, for which purpose they make use of short hard brushes, because they must press pretty strongly upon the iron, in order to give it a sufficient quantity, and they always choose to perform this operation in the spring time of the year, because the moderate heat of the season hardens the pitch so, that it is never melted by the succeeding heats of summer, but on the contrary, acquires such a gloss as to look like varnish. This has been found, by experience, to preserve iron from rust much better than any sort of paint, and is as cheap as any that can be made use of.

To Remove Rust from Iron.

The easiest method of removing rust from iron, is rubbing it with a rag dipped in oil of tartar. The rust will disappear immediately.

Corrosion of Iron Railings.

Where they are united to their sockets by lead, it may be lessened in the following manner—The cause of the corrosion, as is well known, is the galvanic action which goes on between the two metals, through the medium of the water collected at the angle of juncture by capillary attraction; if then the lead, instead of being flush with the stone into which the iron is fixed, were to be bevilled from the iron to the stone at an angle of about 60 degrees, all the water would drain off, and consequently the galvanic action be stopped.

To Preserve Iron Fencing.

The following mode of preserving iron fencing is simple and efficacious. Boil 8lbs. of hog's fat, cut very small, in a glazed pot or pipkin with three or four spoonfuls of water; when well melted, strain through coarse linen, then set on a slow fire with 4 ounces of camphor, broken small, allowing it to boil gently. Take it off, and while hot, mix in it as much black lead as will give colour and consistence, and lay it on the railings hot. This will not only preserve the iron in the air, but also whatever portion may be placed underground.

Economical Method of Employing Tiles For the Roofs of Houses.

A French architect (M. Castala) has invented a new method of employing tiles for the roofs of houses, so as to save one-half the quantity usually employed for that purpose. The tiles are made of a square instead of an oblong form, and the hook that fastens them is at one of the angles, so that when fastened to the laths, they hang down *diagonally*, and every tile is covered one-fifth part on two sides by the upper row.

To Increase the Durability of Tiles For Covering Buildings.

The following composition has been found to be of extraordinary durability, as a glazing or varnish for tiles. No sort of weather, even for a considerable length of time, has had any effect upon it. It prevents that absorption of water, by which common tiles are liable to crumble into dust, hinders the shivering of the tiles, and gives to red bricks a soft lustre, by which their appearance is much improved —

Over a weak fire, heat a bottle of linseed oil, with an ounce of litharge, and a small portion of minium, till such

time as a feather, used in stirring it, shall be burnt to the degree of being easily rubbed to powder between the fingers. Then take off the varnish, let it cool, clarify it from any impurities which may have fallen to the bottom, and heat it again. Having in the meantime melted from three to four ounces of pitch, mix this with the warm varnish. The specific gravity of the pitch hinders it from mingling thoroughly with the varnish, though it even remain so long upon the fire as to be evaporated to considerable thickness. It is not till the varnish be cooled nearly to the consistency of common syrup, that this effect takes place in the requisite degree. If it be too thick, let hot varnish be added to bring it to the proper consistency; if it be too thin, add melted pitch. It is to be laid on the tiles in the same manner in which oil colours in general are put upon the substances on which they are applied. The composition must be heated from time to time when it is to be used.

To Revive Old Writings.

Boil gall-nuts in wine. Then steep a sponge into the liquor and pass it on the lines of the old writing; by this method, the letters which were undecipherable, will appear as fresh as if newly written.

To Take Out Grease Spots from Paper.

Scrape some French chalk very fine; place the greased paper on the powder, and scrape more chalk upon its surface. Place another piece of paper upon the whole, and then pass a hot iron over it; when the grease will be absorbed by the chalk.

To take Paint off Oak Panelling.

Make a strong solution of American Potash (which resembles burnt brick in appearance), mix this with sawdust into a sort of paste, and spread it all over the paint, which will become softened in a few hours, and is easily removed by washing with cold water. If after the panellings, &c., are dry it becomes cracked, apply a solution of hot size with a brush, which will bind it well together and make it better for varnishing, as well as destroy the beetle which is often met with in oak, and is erroneously called the worm.

Stain for New Oak.

Fresh lime-water is said to be a good stain for new oak, another and better stain is to wash with hot beer and rub it well, the grain will show admirably, and time will mellow it down to a beautiful tone. The appearance of old oak may be obtained by exposing any article of new oak to the vapours of ammonia for a certain period. Every variety of tint may be obtained, according to the duration and temperature of the volatile compounds. A new carved oak arm-chair, exposed to the vapours of ammonia, will in about twelve hours have all the appearance of its being made two hundred years since ; and any other wood similarly exposed, will obtain the appearance of oak.

To Restore Old Oak to its Original Colour.

The following receipt for restoring old oak to its original whiteness, has been used with success, viz.—two ounces of oxalic acid, dissolved by friction in one quart of cold water. If the oak has been varnished, it must be scraped clean before using the acid.

Wood Stain.

A decoction of walnut or hicory bark, with a small quantity of alum in it, to give permanency to the colour, makes an excellent dye for white woods.

A New Useful Substance.

An important contribution to the comforts of every-day life is announced, a viscous vegetable fat, called Heveone, the uses of which are thus described in an article on contemporary science—" It possesses great powers of adhesion to any surface to which it may be applied, and as it does not oxidise nor alter in the air, it serves admirably to pre-

serve iron or steel instruments, and polished articles from rust or tarnish. It retains this property even when the coating is so thin as to be almost imperceptible, and consequently may be constantly kept applied to surgical and philosophical instruments, arms for warfare, hunting, &c., which will thus be always bright. The lubricating properties of the Heveone are still more surprising; applied to stopcocks, pistons, screw connections, &c., it renders them at once beautifully mobile and perfectly tight; it never dries or becomes sticky, nor does it attack brass or other metal-work as the generality of greases does. Being quite impervious to water, Heveone is the best thing to apply to articles made of leather, such as boots, harness, &c., as they are, after a few applications, rendered quite waterproof and extremely supple; it also tends to preserve objects against decay. Lastly, though by no means least important in these warlike times, Heveone is the best material to use for rifles, whether as a constituent of the greased wad, or to protect the interior of the barrel from rust. It prevents fouling to a far greater extent than any other kind of grease, and renders the subsequent cleaning a matter of no difficulty."

Method of Bringing Out Sculpture upon Alabaster.

This process is founded upon the property which alabaster or sulphate of lime has, of being slowly eaten out by cold water, so that its polish is destroyed. In the first place, the sculptures in relief, and all the parts intended to be preserved are covered with a varnish insoluble in water, composed of wax, dissolved in oil of turpentine mixed with white lead, or rather with a turpentine varnish, to which

white lead and a little animal oil has been added, to prevent the varnish from hardening and adhering too strongly to the alabaster. This is applied with a soft paint brush, moistened with oil of turpentine, into which it must be dipped every time that varnish is taken. The reserved parts being thus covered, suffer the vessel or ornament to dry for some hours, and then place it in a vessel filled with cold water, and leave it there for forty-eight hours, or longer if it is thought necessary. The varnish is then removed with a fine sponge steeped in oil of turpentine, and the vessel dried with a soft and very dry rag. When the vessel is thus cleared of its varnish and dried, pass over it a new soft brush, first dipped in finely-powdered plaster. The powder fills the pores of the plaster which has been attacked by the water, and renders it mat; which bring out the transparent parts of the alabaster in relief.

To Remove Stains from Boards.

To take out grease spots, dissolve some Fullers' earth in a little hot water, to the consistency of thick paste, and let it get quite cold. Cover the grease spots with it thickly; and after it has remained all night, or for several hours, until thoroughly dry, scour it off with cold water. Should the grease not disappear with the first application, the operation must be repeated two or three times, or as often as may be necessary for its removal. To take ink out, apply strong muriatic acid, or spirits of salts to the stains with a piece of cloth; afterwards well wash the parts with water.

To Paint Cloth so as to Render it Transparent.

Grind to a fine powder three pounds of clear white resin, and put it into two pounds of good nut-oil, to which a strong drying quality has been given; set the mixture over a moderate fire, and keep stirring it till all the resin is dissolved; then put in two pounds of the best Venice turpentine, and keep stirring the whole well together; and if the cloth be thoroughly varnished on both sides with this mixture, it will be transparent. In this operation the surface on which the varnish is to be applied must be stretched tight, and made fast during the application. This mode of rendering cloth, &c., transparent, is excellently adapted for window blinds. The varnish will likewise admit of any design, in oil colours, being executed upon it as a transparency.

Bronzing Plaster Figures.

With a solution in water of palm-oil soap, mix a solution of sulphate of iron, and sulphate of copper; this furnishes a brownish green precipitate, the colour of which may be modified at pleasure by the addition of a greater or less quantity of one or the other of these salts. The precipitate, after being washed and dried, is re-dissolved in a mixture of good varnish of linseed-oil and wax; and with this solution the figures (having been previously heated) are coated; on becoming dry they will be found to be perfectly bronzed.

Casts.

In preparing casts and moulds with gelatine, wax, fusible metal, and similar substances, it is important to use them at the lowest temperature compatible with fluidity, as when only a few degrees hotter, the water which adheres to the objects from which the casts are taken, is converted into vapour and produces bubbles. Fusible metal may be allowed to cool in a teacup until just ready to set at the edges, and then poured into the moulds. When taking impressions from gems, seals, &c., the fused alloy should be placed on paper or pasteboard, and stirred about till it becomes of the consistence of cream, from incipient cooling, at which moment the die or seal should be suddenly stamped upon it, and a perfect impression will be then obtained.

To Clean Paint that is not Varnished.

Put upon a plate some of the best whiting; have ready some clean warm water and a piece of flannel, which dip into the water and squeeze nearly dry; then take as much whiting as will adhere to it, apply it to the paint, when a little rubbing will instantly remove any dirt or grease; wash well off with water, and rub dry with a soft cloth. Paint thus cleaned looks equal to new, and without doing the least injury to the most delicate colour; it will preserve the paint much longer than if cleaned with soap, and it does not require more than half the time usually occupied in cleaning.

A Cement for Glass.

A transparent cement for glass is made by dissolving one part of india-rubber in chloroform, and adding sixteen parts, by measure, of gum mastic in powder. Digest for two days, and frequently shake the vessel in which these substances are contained. The cement is applied with a fine camel's hair brush.

Black Japan.

To make black japan, take ground burnt half-a-pound, and asphaltum four ounces ; dissolve them in boiling linseed-oil, so that it will be about the thickness of treacle when finished. It is now cooled and thinned with turpentine, so that it may be put on with a brush. If two ounces of the sulphate of zinc are added cautiously, it will dry more rapidly.

To make Writing Paper resemble Parchment.

By saturating writing paper in a concentrated solution of neutral chloride of zinc, then washing and drying it, the sheets contract in size, become thicker, and resemble parchment. The solution may be used either cold or hot, but in all cases the paper must be washed in water before it is dried.

Varnish for Iron Work.

To make a good black varnish for iron work, take eight pounds of asphaltum and fuse it in an iron kettle, then add two gallons of boiled linseed-oil, one pound of litharge, half-a-pound of sulphate of zinc (add these slowly or it will fume over), and boil them for about three hours. Then add one pound and a half of dark gum copal, and boil for two hours longer, or until the mass will become quite thick when cool. After which it should be thinned with turpentine to the proper consistency.

To Clean Stone Stairs or Hall Pavements.

Boil together half-a-pint each of size and stone blue water, with two tablespoonsful of whiting, and two cakes of pipe-maker's clay, in about two quarts of water. Wash the stones over with a flannel slightly wetted in this mixture; and when dry, rub them with flannel and brush. Some recommend beer, but water is much better for the purpose.

To Clean Marble.

Take a bullock's gall, a gill of soap lees, half a gill of turpentine, and make it into a paste with pipeclay; then apply it to the marble, and let it dry a day or two; then rub it off, and if not clean, apply it a second or third time until it is clean.

Another Method.

Take two parts of common soda, one part of pumice-stone, and one part of finely-powdered chalk; sift it through a fine sieve, and mix it with water; then rub it well all over the marble, and the stains will be removed; then wash the marble over with soap and water, and it will be as clean as it was at first.

Cement for Joining Broken Marble.

Melt equal parts of yellow resin and bee's-wax; then stir in half as much finely powdered plaster of Paris. Apply hot, previously warming the pieces.

To Remove "Iron Moulds" from Marble.

Mix equal quantities of spirit of vitriol and lemon juice, shake it well; wet the spots with the mixture, and in a few minutes rub with soft linen until they are completely effaced.

To take Stains out of Statuary Marble.

Take American potash and make a thin paste, lay on with a brush and let it remain for a few hours, then remove with clean water.

Armenian Cement.

Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid; and in another vessel, dissolve as much isinglass, previously softened with water, in as much French brandy or rum as will make a two-ounce phial of strong glue, adding two small bits of pounded gum albanum or ammoniacum. Mix the whole and heat. Keep the glue in a phial closely stopped, and when it is to be used, set the phial in boiling water. Throughout the East this is used for uniting glass, china, and even polished steel; and so strong is the joint, that the parts cemented never separate.

To Clear a Well of Foul Air.

Put a quart or two of unslaked lime into a bucket, and before lowering it into the well, put a sufficient quantity of water on the lime to slack it; then let it down to the water, but not so as to get into it. In a few minutes the well will be cleared of foul air, the slacking lime either absorbing the noxious air or forcing it out of the well.

To Cure Smoky Chimneys.

Smoky chimneys result from a variety of causes. The wind may be let on too freely above, or the smoke stifled below; the vent may also be too contracted, particularly

where several open into the same funnel. The situation of a house may also affect the chimneys, especially if backed by higher ground or loftier buildings. In many cases, the remedy for smoky chimneys is of the most simple kind, but the first step is to ascertain the cause of the defect. The following are some amongst many others—A single chimney is more liable to smoke than when it forms part of a stack. Straight flues seldom draw well. A northern aspect often produces a smoky chimney. Large fireplaces are apt to smoke, particularly when the aperture of the flue does not correspond in size; for this a temporary remedy may be found in opening a door or a window; a permanent cure, by diminishing the size of the lower aperture. When a smoky chimney is so incorrigible as to require a constant admission of fresh air into the room, the best mode is to introduce a pipe, one of the apertures of which communicates with the open air, and the other terminates underneath the grate; or openings may be made near the top of the apartment, if lofty, without any inconvenience even to persons sitting close by the fire. Where a chimney only smokes when a fire is first lighted, the defect may be guarded against, by allowing the fire to kindle gradually; or more promptly by laying any inflammable substance, such as shavings, on the top of the grate, the rapid combustion of which will warm the air in the chimney, and give it a tendency upwards before any smoke is produced from the fire itself. Sometimes the fault lies in the grate not being set *true* to the mouth of the chimney; this should be ascertained, and the grate set more backward or forward, as the case may be. If a kitchen chimney overpowers that of the parlour, as is often the case in small houses, apply to each chimney a free admission of air until the evil ceases. When a chimney is filled with smoke, not of its own formation, but from the funnel next to it, cover each funnel with a conical top, or earthen crook; by means of which the two openings are separated a few inches, and the cold air or the gusts of wind cease to force the smoke down with them. If these remedies fail, it will be generally found that the chimney only

smokes when the wind is in a particular quarter; the following is then the best remedy to adopt—put on the top of the chimney a box, in each of the sides of which is a door hanging on hinges, and kept open by a thin iron rod running from one end to the other, and fastened by a ring in each end to a staple. When there is no wind these doors are at rest, and each forms an angle of forty-five degrees, which is decreased on the windward side in proportion to the force of the wind, and increased in the same ratio on the leeward side. If the wind be very strong, the door opposed to it becomes closed, whereby the opposite one is opened to its utmost width. If the wind shakes the corner of the box, its shuts two doors, and forces open those opposite. This scheme is infallible; the expense is trifling and the apparatus simple.

Fireproof and Waterproof Cement.

To half-a-pint of milk put an equal quantity of vinegar, in order to curdle it; take the curd from the whey and mix it with the whites of four or five eggs; beat them well together; add a little quick lime through a sieve, till it has acquired the thickness of paste. With this cement, broken vessels of all kinds may be mended; it dries quickly and resists the action of water, as well as a considerable degree of heat.

To prevent Iron Pipes from Rusting.

A French workman, who observed the effect on iron pipes in various soils, has discovered that iron gas pipes, and water pipes, may be kept from rusting by laying them in a bed of clay. The Paris municipal authorities consider this of so much importance, that they have given him a handsome income for life as a reward.

Machine for Cutting Stones in Quarries.

Mr. Le Blanc, Welbeck Street, has provisionally specified an invention, which is intended to facilitate the cutting of stones in open quarries. The *Mining Journal* says—"The machine moves on iron rails, and cuts the stone by means of twelve pickaxes, about thirty inches in length; they are bolted to a cast-iron plate of sixty inches in diameter: these plates are five in number. The boiler is tubular, and is furnished with cylinders, the connecting-rods of which act on the same shaft with a double crank. Two pulleys on this shaft communicate the movement to two other pulleys, the shaft of which is held by two supports, on windlasses placed in front of the machine. The same shaft carries two pulleys, communicating movement to two others fixed on the shaft, and bearing the five plates, each armed with twelve pickaxes as above shown. The machine when placed on the rails, runs from one extremity of the quarry to the other, cutting the stone in a straight line; on arriving at the end it is made to go back, the rails being placed obliquely, so that on arriving at the side it began at, it is in a position to commence a second cutting."

Banherman's Incomparable and Durable White Paint.

FOR INSIDE WORK ONLY, WHICH WILL DRY AND CEASE TO SMELL WITHIN SIX HOURS.

Add to a gallon of spirit of turpentine, two pounds of frankincense. Let it simmer over a clear fire till dissolved, then strain it and bottle for use. To a gallon of bleached linseed oil add a quart of this mixture, shake them well together, and bottle this also. Let any quantity of white lead be ground very fine with spirit of turpentine, then add to it a sufficient portion of the last mixture, till it be found fit for laying on. If in working, it should get thick, it must be thinned with spirits of turpentine. This is what painters call a flat or dead white, to distinguish it from common white paint, being only suitable for the very best internal work, both on account of its superior delicacy and expense.

Method of Preparing a Cheap Substitute For Oil Paint,

AS DURABLE AS THAT PREPARED WITH OIL, AND FREE FROM ANY BAD SMELL.

Take fresh curds, and bruise the lumps on a grinding-stone, or in an earthen pan or mortar, with a spatula. After this operation, put them into a pot with an equal

quantity of lime, well quenched and become thick enough to be kneaded; stir this mixture well, without adding water, and you will soon obtain a white-coloured fluid, which may be applied with as much facility as varnish, and which dries very speedily. But it must be used the same day as made, as it will be too thick the day following. Ochre, Armenian bole, and all colours which hold with lime, may be mixed with it, according to the colour which you wish to give the wood; but care must be taken that the addition of colour to the first mixture of curds and lime may contain very little water, else the painting will be less durable. When two coats of this paint have been laid on, it may be polished with a piece of woollen cloth, or other proper substance, and it will become as bright as varnish. It is certain that no kind of painting can be so cheap, but it possesses, besides, other advantages; in the same day two coats may be laid on and polished, as it dries speedily and has no smell. If it be required to give it more durability in places exposed to moisture, do over the painting, after it has been polished, with the white of an egg. This process will render it as durable as the best oil painting.

Potter's Patent for Waterproofing Cloth.

Imbue the cloth on the wrong side with a solution of isinglass, alum, and soap, by means of a brush. When dry, brush on the wrong side against the grain, and then go over with a brush dipped in water. This makes the cloth impervious (for a long time) to water, but not to air.

Ceramic Wood.

Mr. J. C. Martin, of Barnes, has patented a plastic material, resembling wood in its finished state. It may readily be moulded by pressure into moulds of any form; it admits of carving or cutting to any extent required; may with facility be glass papered, and will receive the highest French polish. The material is in great part composed of fibrous pulp, of as long a description as possible (to which it owes its strength), which is worked together with resinous and gelatinous gums, acted upon chemically, and as nearly as possible to imitate the nature of wood.

Something New.

Mr. Calvin Adams, of Pittsburg, has recently discovered that an important electrical change takes place when molten iron solidifies in cooling. By insulating the moulds, and the workman who pours in the liquid metal, the castings from common iron come out as white as silver, and as hard as steel. This is another evidence of the universality of this subtile force, and though it is not yet applied to any practical purpose, such phenomena cannot fail eventually to produce useful effects.

Durability of Elm Plank.

At the recent Meeting at Dorchester, of the Bath and West of England Agricultural Society, Lord Portman

stated, that the elm planks which were taken up out of the Thames previous to the building of the new London Bridge, were quite sound, although they had been in the water 800 years.

To make Paper Stick to a Wall that has Been Whitewashed.

Make a strong brine of salt and water, heat it boiling hot, then take a broom and scrub the wall with it. When dry, put the paper on as you would on a new wall, and it will stick quite as well. Or wash the walls with strong vinegar previous to putting on the paper, and your paper will be sure to stick.

To obtain Heights which cannot Be Measured.

Take any two rods of unequal length, place the short rod at any convenient distance from the building, and the long rod at such a distance from it, that looking over the short rod to the top of the building, the top of the long rod shall cut that sight. Then say as the distance between the rods is to the height of the long rod over the short one, so is the distance of the long rod from the building to the height of the building, to which result add the short rod, and you have the height of the building.

To Clean Printed Paper and Picture Prints.

Fasten the paper to a board with button drawing pins, then wash it with water, in which is dissolved an ounce of carbonate of ammonia to every pint of water. This do with care, employing a camel's hair brush for the purpose. Then rinse the paper well with plenty of fresh water. When dry, repeat the same process for the reverse side of the paper. Now wet the paper with water made sour with white vinegar. Finally, wet the paper with water, containing a little bleaching powder, and again rinse with clean water; then dry it by exposure to air and sunshine. It will become white, excepting where printed. To stiffen the print give it a coat of parchment size. Most valuable prints have been thus "restored."

For Masons to Remove Sand or Dust that has got into the Eye.

When the eye is irritated by dust, or intrusive particles of any kind, the sufferer invariably shuts and rubs his eye, and not unfrequently the removal of the irritating cause thereby becomes more difficult. The proper practice is to keep the eye open, as if staring; a sort of rotatory movement of the ball takes place, the surface becomes covered with water, the particle is gradually impelled to

the corner of the eye, and is there floated out, or can be easily removed without any of the disagreeable consequences that attend shutting and rubbing.

New Stain for Wood.

Permanganate of potash, dissolved in water, is capable of staining light wood of a brown tint, or rather of a series of brown tints, from very light to very dark, according to the quantity absorbed.

Ironwork in Masonry.

The failures attendant upon employing iron cramps in masonry are too well known to require any lengthened remarks. Sir Christopher Wren forbade the use of them when exposed to the air, but permitted them, if within nine inches of air. Copper or brass are the best materials for cramps, but even iron may be used if painted, or made warm and then rubbed with bee's-wax.

To ascertain whether a Room is Damp.

Place a weighed quantity of fresh lime in an open vessel in the room, and leave it there for twenty-four hours, carefully closing the doors and windows. At the end of the twenty-four hours, re-weigh the lime, and if the increase exceeds 1 per cent. of the original weight, it is not safe to live in the room.

A New Cement.

Professor EDMUND DAVY lately read a paper to the Royal Dublin Society, on a Cement which he obtains by melting together in an iron vessel two parts by weight of common pitch, with one part of gutta percha. It forms a homogeneous fluid, which is much more manageable for many useful purposes than gutta percha alone, and which, after being poured into cold water, may be easily wiped dry and kept for use. The cement adheres with great tenacity to wood, stone, glass, porcelain, ivory, leather, parchment, &c.

A Remarkable Property of Iron.

In the year 1856, Mr. MARCH, an able chemist connected with the Royal Arsenal, discovered that it was an invariable rule with iron which has remained a considerable time under water, when reduced to small grains or an impalpable powder, to become red hot, and ignite any substances with which it may come in contact. This he found by scraping corroded metal from a gun, which ignited the paper containing it, and burnt a hole in his pocket.

To keep Ice from Shop Windows.

Take an ordinary paint brush, or sponge, and run over the glass once or twice a day a little alcohol, and it will keep the glass as free from ice as in the middle of summer, and it will also give as good a polish as can be got in any other way.

Gold Ink.

Take some leaf gold and white honey, and grind them together upon a marble slab until the gold is reduced to an impalpable powder. The paste thus formed is agitated in a large glass tumbler with soft water, which dissolves the honey, while the gold falls down to the bottom. The water is then poured off and the gold washed until all the honey is removed, after which the gold is dried, and then suspended in a mucilage of gum arabic. It may then be used for writing upon paper, and when it becomes dry, it can be burnished and rendered brilliant. Silver ink is prepared in the same manner, by substituting silver leaf for the gold.

Cellar Walls and Floors.

Most cellars are built without adequate provision being made for keeping moisture from passing through the walls from the outside, and up through the earthen floors inside, during rainy weather. The cellar of a house should be dry, so as to render it comfortable and healthy, as moisture in the lower part of a dwelling generally makes the upper stories damp and chilly, and causes mildew in clothes, books, and all household articles made of cloth and leather. Cellars can be easily built so as to have dry walls, and hard dry floors; and the latter are invaluable, to prevent rats from burrowing, as well as dampness from coming up from the soil beneath. To render the cellar walls dry, they should be coated on the outside

with hydraulic cement, mixed with sand. Many houses have their cellar walls thus treated, but their floors are neglected. To make a cement floor, the surface should first be rammed down and levelled; then hydraulic cement, mixed with sand, of about the consistency of thick mortar, should be laid on to about one inch in thickness, and its surface levelled with a scraper made of a thick plank. In laying down such a floor, sections of about eight feet square should be marked off, and finished one after another. A coat of clean sand or gravel, one inch thick, should be laid on the top of the cement, and after it has stood about half-an-hour, the whole should be rammed down smooth with a pounder, when the work is complete, after the surplus sand has been swept off. In a few days, such a floor becomes as hard as a stone, and quite impervious to water.

Cause and Prevention of the Dry Rot.

The cause of the dry rot in wood is moisture; and to prevent well-dried timber from decaying above, or under ground, is by charring it well.

Cure for the Dry Rot in Timber,

SO AS TO MAKE IT INDESTRUCTIBLE BY WATER.

Melt twelve ounces of resin in an iron pot; add three gallons of train oil, and three or four rolls of brimstone, and when the brimstone and resin are melted and become thin, add as much Spanish brown, or red and yellow ochre,

or any other colour required, first ground fine with the same oil, as will give the whole a shade of the depth preferred; then lay it on with a brush, as hot and thin as possible; some time after the first coat is dried, give it a second. This preparation will preserve planks for ages, and keep the weather from driving through brick-work.

Important to Well-sinkers and Others.

It is well known, that carbonic acid often accumulates in large quantities at the bottom of wells, and that its presence may be ascertained by letting down a lighted candle, which will go out as soon as the flame comes in contact with the gas. Many men have lost their lives from descending into wells in this state. M. Sylvestre has discovered an easy way of absorbing this fatal gas. He pours lime water (water in which lime has been slaked) gradually into the well, allowing it to trickle down the sides, and then throws down some five or six pounds of quicklime, in lumps. By the next day the carbonic acid gas is all absorbed, and the well is safe.

Excavating in Water.

A new machine has been invented by Dr. Payerne, for the excavators under water at the port of Fécamp, which he calls the "hydrostat." It consists of a wrought-iron case, divided into three parts by two horizontal divisions. The lower story, or if we may so call it, the working chamber, rests on the bottom of the sea. The double sides, enclosed at bottom, contain the necessary ballast for the sinking and stability of the structure. Thirty-five men can work at ease in the working chamber.

Durable Putty.

Take common clay, well dried and powdered, and mix with oil in the same way that putty is made from white lead. This appears after a trial of several years to stand the weather better than white lead, showing no disposition to crumble or decay, but preserving a hardness like earthenware.

Material for Paint.

In Russia, very little turpentine or varnish is used in their paints. They use the curd of milk, mixed with pigments; it is more durable, and less dangerous on account of fires. A very excellent fire-proof wash for outside buildings, is made of clay, stirred up in water, containing about an ounce of potash for every five gallons.

To Extract Iron, Wine, or other Stains Out of Marble.

Take half-an-ounce of nitrate of potash, one ounce of salts of lemon, and mix well with four ounces of whiting. Spread it on the stain and leave for half-an-hour, then take it off and wash well; afterwards touch the stain with a little fluoric acid, and wash it off directly, when the stain will be removed.

Disintegration of Granite.

This mineral in its perfect form, consists, as our readers are aware, of three constituents—mica, feldspar, and quartz. The mica being that shining substance which may be detached by a sharp instrument in their flakes; the quartz is the hard white body, which the masons call horsetooth, when in large irregular pieces; and the feldspar is the cementing medium, in which the others are embedded. Sir Gardner Wilkinson has noted the liability of the feldspar to decay under the action of nitre, so that in Egypt, where a block of granite has by displacement or accumulation of soil, been brought into contact with the earth, the granite has suffered from nitrous agency, while, where exposed to the air only, it has remained perfect. The fact, he thinks, was well known to the ancients, who usually placed granite on a foundation of sandstone.

Hard Cement.

The following cement has been used with great success in covering terraces, lining basins, soldering stones, &c., and everywhere resists the filtration of water. It is so hard that it scratches iron. It is formed of ninety-three parts of well-burned brick, and seven parts of litharge, made plastic with linseed oil. The brick and litharge are pulverized; the latter must always be reduced to a very fine powder: they are mixed together, and enough of linseed

oil added. It is then applied in the manner of plaster, the body that is to be covered being always previously wet with a sponge. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desired degree of hardness. When it is extended over a large surface, it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.

Sleeping in Damp Rooms.

Rooms where the plastering was never well dried, either from the want of time, or from being filled with frost before it had chance to dry; rooms in basements or on the north side of a house shaded by trees, or other buildings, are very unwholesome for sleeping apartments. And what makes the exposure greater, and the results more serious, a cold is taken when the body is in an active state, and it is very difficult, if not impossible, to throw off such colds. Quite a number of cases of severe sickness have occurred in the experience of the writer, from such exposures, and in two or three instances death has followed. No one thing is so conducive to health, as large, airy, and well-lighted rooms for sleeping. This is very important where there are small children or feeble constitutions.

To Prevent Rot in Dwelling Houses.

Make two or more openings in the external walls (says the *Builder*), and put gratings on them to keep out vermin, from below the basement floor. Insert a tile pipe into

the fire wall, with one end open to the space below the floor, and carry the pipe up the centre of the fire wall as close as possible to the fire flue, and out at the chimney head. The air in the pipe will be rarified, being in close contact with the fire flue, thus causing a continuous upward flow, sweeping the space below the floor of all the foul air, which, in my opinion, is the chief cause of dry rot. The whole of the apartments in the house may be ventilated by means of this pipe, by inserting a tube into it at the level of the ceiling, with a valve in it to prevent down-draught. I have adopted this system for the last ten years, because I know of no better.

For Putting Up Paper-Hangings.

If the room has not been papered before, but coloured, all the old colour should be well washed and scraped off. If the room has been papered before, you need only tear off wherever the old paper is loose or blistered. Care should be taken to remove the old loose paper, or the fresh paper will look very bad. The walls should then be well sized (the size made with an ounce of glue to a gallon of water), especially carefully size the walls close to the ceiling, as the whitewashing of the ceiling splashed on the walls kills the paste, unless it be well scraped and sized just there all round. When the walls are dry they are ready to be papered. The rolls require cutting at one edge before hanging. Take hold of the end of a roll, letting the roll fall off your knees on to the floor, and with your longest scissors cut off the edge close to the pattern all throughout the rolls you require. The paste should be thick for good papers and thinner for common thin papers. (It is better to put a nut-size lump of alum in it and use just made). If the paper is thick, it should lie a minute or two after it is pasted, but if thin, the sooner it is on the wall the

better. Begin by placing the close-cut edge of the paper at one side of the window, stick it securely to meet the ceiling, let it hang straight, and then press it down lightly and regularly with a clean cloth. The close-cut edge of the next length will cover the half-inch left on the first one, and so make a neat join; and in this way you may go all round the room and finish at the other side of the window. If you intend to use bordering, which is very cheap and much used, and sets off a room very much, you need not be so particular in cutting the top of paper next to the ceiling quite straight, as the border will hide that portion. Paperhangers will do well to remember, that the cheap satin papers require quick drying. A good fire in the room, and window little opened, will retain the glaze on the paper when dry. Persons should avoid sleeping in rooms papered during the day. Green papers have generally done the injury complained of them while wet and proper ventilation omitted.

Colouring Walls or Ceilings.

The first thing to be done is to wash off the dirt and stains with a brush and clean water, being careful to move the brush in one direction, up and down, and not all sorts of ways, or the work will look smeary afterwards. When dry, the ceiling is ready for whitewash, which is to be made by mixing whiting and water together till quite smooth, as thick as cream. Dissolve half-an-ounce of glue in a tea-cupful of water, and stir it into the whitewash. This *size*, as it is called, prevents the white or colour rubbing off the wall, and a tea-cupful is enough for a gallon of wash. Stone colour is made by mixing a little yellow ochre and blue black with the size, and then stirring it into the whitewash; yellow or red ochre are also good colours, and with vermillion or indigo, any shade may be prepared, according to taste.

Storm Glass.

The storm glass is a very elegant and economical little "weatherwise," which deserves more attention than it has yet received. To prepare this instrument, take two drachms of camphor, half drachm of pure nitrate of potash (nitre or saltpetre), and half drachm of muriate of ammonia (sal-ammonia), and triturate them together until they are thoroughly pulverized. The operation may be assisted by adding a few drops of alcohol. When well triturated, the mixture is to be dissolved in about two ounces of alcohol, and put into a tall phial, as an Eau de Cologne bottle, or into a glass tube, of about ten inches in height and three-fourths of an inch in diameter, the mouth of which is to be covered with a bit of bladder or the like, perforated with a pin. The instrument is then complete. The indications which it gives are of this nature — If the atmosphere be dry and the weather promising to be fine, all the solid part of the composition which appears in the glass will be closely collected at the bottom, and the liquid above will be quite clear; but on the approach of a change to rain, the solid matter will appear gradually to rise, and small crystalline stars will be observed to float about in the liquid, which, however, will remain otherwise pellucid. On the approach of winds, flocks of the composition, apparently in the form of a leaf, will appear on the surface of the liquid, which in this case will seem thick and in a state of fermentation. These indications often begin to exhibit themselves twenty-four hours before the actual breaking forth of the storm, and after a short experience in observing the changes of appearances of the materials in the glass, not only the magnitude of the coming storm will readily be estimated, but

likewise its direction; for the quarter of the compass from which the wind blows will always be indicated by the circumstance of the solid particles lying more closely to the side of the glass opposite to that whence the tempest comes. During the winter, the composition is rendered white, by the multitude of small white stars which are constantly floating about in the liquid: this is particularly remarkable during white frost and snow. In summer, on the contrary, when the weather is warm and serene, the liquid is clear, and the solid matter lies at the bottom of the glass.

Artificial Stone.

If pure lime be slacked with water, and then mixed with a proper proportion of silex, the whole will crystalize, as it gradually imbibes carbonic acid gas from the atmosphere, and thus in a series of years become as hard as unburnt limestone. (This proves that the "carbonic acid gas" of London, is not the cause of the decay of the Houses of Parliament; it is owing to the sulphurous acid of coal gas, or the bad mortar). Very large caissons of open framework, or porous material, expeditiously filled with pure lime slacked with water, and mixed with a proper proportion of silex, and rammed down in these caissons, if exposed to the vapours of this elastic air, in an artificial form, is capable of making a very hard and durable stone, suitable for many purposes. I leave others to improve on my process for their own benefit.—J. N.

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Your Book not only meets with my approval, but with my warmest admiration; it is just the thing that is wanted, for Cemetery work in particular.

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